VOL. 160 — NO. 11

MARCH 18, 1961

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

Brightly lighted equipment room of new Vancouver, B.C. exchange affords the public an impressive view. Also striking, to telephone people, is fact that exchange seems to have no main distributing frame. See story, page 46.

Circulation This Issue
14,121 of Which
13,538 Is Paid

MANAGEMENT · PLANT · TRAFFIC · COMMERCIAL · LEGAL · ACCOUNTING

Save on construction costs with the new '61 FORD TRUCKS

SAVE FROM $22 TO $260 ON PRICE* ALONE WITH FORD'S ECONOLINE PICKUP

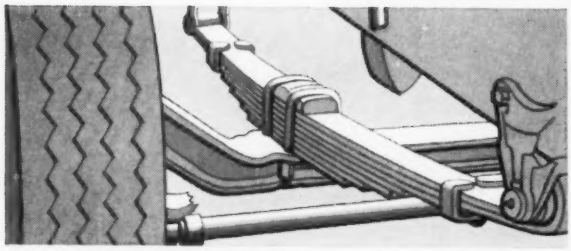
Profit-conscious contractors are finding it's good business to do business with the new Ford Econoline Pickup. It's America's lowest-priced* ½-tonner—bar none! Priced from $22 to $260 below conventional pickups. But that's just the beginning! You get lively performance and proven gas economy with the popular 144 cubic inch Falcon Six. This modern engine goes 4,000 miles between oil changes, and has an aluminized muffler which lasts up to three times as long as ordinary mufflers.

And you can save more because Ford's functional design has pared away 1,000 pounds of dead weight, yet you still get the payload capacity of standard ½-tonners. The big 7-foot box provides a whopping 73 cubic feet of loadspace . . . that's up to 23% more than conventional 6½-foot pickups. A full 49-inch tailgate opening means you can load items like standard sheets of 4′ by 8′ plywood. And the full-length *flat* floor permits bulky or heavy loads to be positioned easily by sliding them anywhere in the pickup box.

And you can save on maintenance expense, too. The engine cover can be lifted quickly, exposing the entire engine for rapid service. Spark plugs, distributor, etc., are conveniently located to speed engine tune-ups. And many major repairs can be made without ever removing the engine. One-piece cab-and-body construction provides increased rigidity and eliminates a major source of rust. In addition, all main underbody structural members are heavily zinc-coated to resist rust and corrosion.

New Ford Econoline ½-ton Pickup. Big 7-foot box with flat floor and 73 cu. ft. of usable loadspace. 1,650-lb. payloads with 4,350-lb. maximum GVW.

*Based on a comparison of latest available manufacturers' suggested retail delivered prices



SAVE UP TO $250 ON FRONT TIRES! In certified tests of two-ton truck suspensions, Ford front tires lasted over twice as long. In 40,000 miles this saving can add up to $250 . . . more as the mileage increases. And Ford's sturdy I-Beam front axle and leaf-spring suspension not only cut tire wear, but their simpler design also cuts maintenance costs.

12,000 MILE OR 12 MONTH WARRANTY

SAVE WITH GREATER DURABILITY . . . on all 1961 Ford Trucks, each part, except tires and tubes, is now warranted by your dealer against defects in material and workmanship for 12 months or 12,000 miles, whichever occurs first. The warranty does not apply, of course, to normal maintenance service and to the replacement in normal maintenance of parts such as filters, spark plugs and ignition points. Never before have you had such protection . . . such evidence of long-term economy!

SAVE WITH FORD'S NEW 262-CU. IN. "BIG SIX" ALL-TRUCK ENGINE FOR TOP PERFORMANCE AND ECONOMY

America's lowest-priced* medium-duty tilt-cab models now offer a big 262-cubic-inch Six with the power of big displacement, the gas economy of 6-cylinder design, plus the durability of heavy-duty construction. This engine features a sturdy stress-relieved head and block, strong forged steel crankshaft, long-lasting stellite-faced intake and exhaust valves and durable pyramid-type connecting rods. Positive Crankcase Ventilation reduces oil dilution and sludge formation to extend engine life. Ford's proven 292 V-8 and 292 HD V-8—the V-8's with "six-like" economy—are also available for your special power needs.

The popular Ford Tilt Cab Series outsells all other makes and for good reason! Their compact 82-inch BBC permits longer bodies within a given over-all length . . . for longer loads of lumber and building materials with excellent maneuverability. And set-back front axle design means more weight is carried on the front axle for greater payloads.

You also save with other new features like the stronger radiator with new lock-seam construction, and color-coded printed instrument panel electrical circuits that provide for greater reliability and simplified maintenance. In addition, Ford's parallel ladder-type frame, with standard 34-inch width, allows you to install new or transfer your present special construction bodies quicker and for less.

FORD TRUCKS COST LESS

YOUR FORD DEALER'S "CERTIFIED ECONOMY BOOK" PROVES IT FOR SURE...

FORD DIVISION, *Ford Motor Company*

FLASHES AND PLUGS

POLE CAT. There's been a lot written about joint use of telephone poles, but not many telephone companies ever expected it to go as far as it did in Pittsburgh, Pa. recently.

In that town, according to a United Press International report, a 35-foot telephone pole was used jointly by the telephone company, and by a cat—the feline utilizing it as an obstetrical ward.

Kitty spent three days on the pole, giving birth to two kittens in the interim, and also surviving a storm which pelted it with rain, snow and 50-mile-an-hour winds.

Officials were in a dither trying to get the animal down. The problem was finally solved by a UPI photographer and a retired steelworker, who rigged up a long stick with a cardboard box, used a handful of hamburger as bait, lured the cat into the box, and lowered her to safety. Unfortunately, by this time it was too late to save the kittens, which had either been blown or fallen to their deaths.

Mama Cat was claimed by an eight-year-old lad who took her home, and fed her warm milk. Less than an hour later, she had two more kittens.

•

BORROWED BOOTH. D. K. Foley of San Diego, Cal., one of our readers, brought to our attention a story in Neil Morgan's column in the San Diego *Evening Tribune*.

It seems that an *Evening Tribune* reader found a classified ad offering a Leica camera for sale. Friend reader dialed the number, but when a voice finally answered, the prospective buyer was told he had reached a pay telephone booth outside a drive-in.

The caller double-checked the number, and then asked about the Leica.

"Oh, that's sold," the voice told him. "Fellow drove up here this morning with a book to read, parked outside the telephone booth, and answered the telephone for about half an hour, until he'd made his deal. I asked him . . . didn't he have a telephone at home?

" 'Sure,' he said, 'but this way I can sell the darn thing, and then not have to sit around listening to the telephone ring all day and night.' "

•

A YOUNG ORACLE SPEAKS. Their mother was entertaining her canasta club one evening when she heard her children's feet pattering on the stairs.

Her guests, sensing that this was a great ceremonial moment, paused as she raised her hand for silence. She said softly: "The children are going to deliver their 'good night' message."

The moment of silence was observed. Then, from the stairs, a shrill voice echoed, "Mama, Willie found a bedbug!"

CHANGE OF ADDRESS

Please notify your local postmaster and the Circulation Department of TELEPHONY of change of address. Change cannot be made without the old as well as the new address. Allow three weeks for change of address to become effective.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

1901 — 60 years — 1961

March 18, 1961

CONTENTS

IN THE NATION'S CAPITAL 17
By Francis X. Welch

A LOOK AT THE COMPONENTS OF PBX SERVICE .. 24
By Gilbert R. Brackett

HOW TO BOOST LONG DISTANCE REVENUE 27
By D. G. Plaskett

THE PLANT MAN'S NOTEBOOK 32
By Ray Blain

PLANT MAN'S QUIZ 33
By Ray Blain

COURTS AND COMMISSIONS 34

$3,839,000 IN REA LOANS APPROVED FOR EXPANSION 42

NEWS ON NEW PRODUCTS 50

HELPFUL LITERATURE 58

H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • PAUL E. MURPHY, *Electronics Editor* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager*.

VAC **Circulation Audited and Verified (direct from auditor to subscriber) By Verified Audit Circulation Co.**

Published every week on Saturday by TELEPHONY PUBLISHING CORP., 608 S. Dearborn St., Chicago 5, Ill. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879. 30c per copy (except special issues—50c). Subscription $4.50, 1-year; $7.00, 2-years; $9.00, 3-years. Add $1.00 per year for postage to Canada and Pan American countries; $2.00 per year to Foreign countries. Telephone WAbash 2-2435.

WE'LL GO TO ANY L-E-N-G-T-H
To Keep Your Subscribers Happy

There's a Koiled Kord to suit any subscriber's normal requirements for length. Koiled Kords retractile cords for telephones come in 12 standard sizes that extend from 1½ feet to 25 feet . . . for unusual lengths, ask us for details. Available in black and attractive colors to keep everybody happy.

Koiled Kords INC.

A Subsidiary of Whitney Blake Company

New Haven 14, Connecticut

Telephone: CHestnut 8-5515 . . . TWX NH84

MORE CIRCUITS PER CABLE.
Anaconda High-Count cable contains up to 2727 pairs. More pairs mean maximum utility of existing ducts.

Now get more circuits in new and existing ducts with ANACONDA® High-Count cable

Up to 2727 pairs per cable—that's how Anaconda's HC cable makes possible much more efficient use of your duct banks. In many cases, no new ducts are needed—no new construction to pay for. Your existing duct system can hold more circuits, serve more subscribers and bring in more revenue with Anaconda High-Count cable.

The chart below sums up the basic facts on all types of Anaconda HC cable. For more specific information on any one type, write to Anaconda Wire and Cable Co., 25 Broadway, New York 4, New York. 60247

PHONE THE MAN FROM

ANACONDA®

FOR TELEPHONE CABLE

the independent manufacturer for the independent telephone industry

HIGH-COUNT CABLE

STALPETH

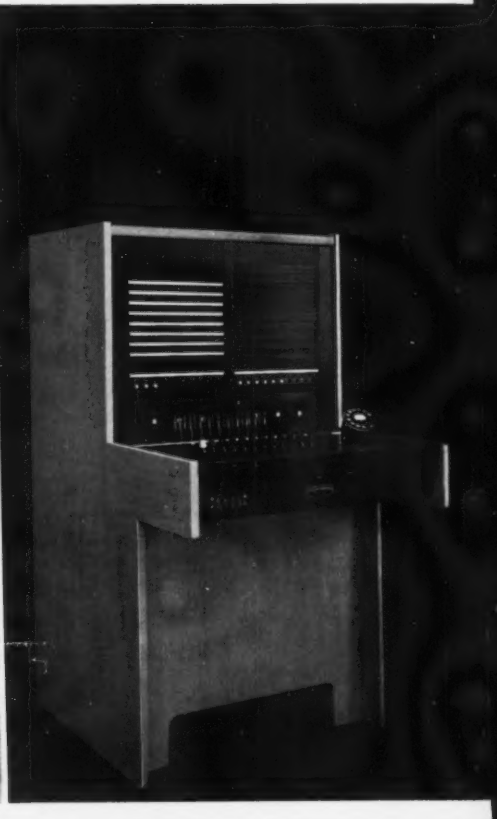
Conductor Size	Number of Pairs	Guaranteed Number of Pairs	Approximate Overall Diameter	Approximate Net Weight	Shipping Weight	Standard Reel Length
			inches	lb per M ft	lb per M ft	feet
19	556	556	2.97	5950	8430	700
22	1111	1111	2.96	5940	8400	700
24	1818	1815	2.96	6060	8530	700
26	2424	2418	2.89	5270	7750	700
26	2727	2721	3.04	5990	8470	700

PAPER-LEAD

Conductor Size	Number of Pairs	Guaranteed Number of Pairs	Approximate Overall Diameter	Approximate Net Weight	Shipping Weight	Standard Reel Length
			inches	lb per M ft	lb per M ft	feet
19	556	556	2.86	10,370	12,850	700
22	1111	1111	2.87	10,410	12,900	700
24	1818	1815	2.85	10,320	12,800	700
26	2424	2418	2.78	9,520	12,000	700
26	2727	2721	2.94	10,550	12,920	700

how AE helps you

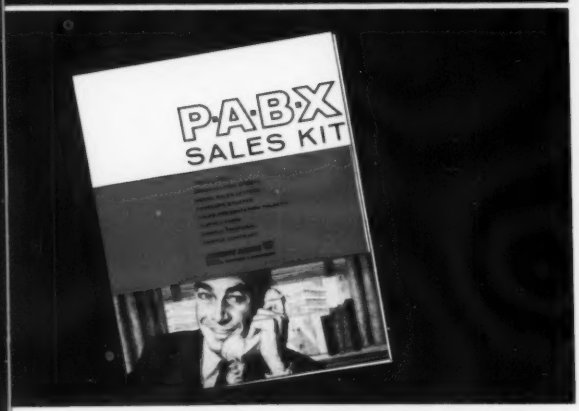
increase your



Compact attendant cabinet for use with AE P-A-B-X systems. Uses less space than a typewriter! Two-tone grey finish blends into the color of any office.

Floor-type attendant cabinet for use with our larger P-A-B-X systems. Choice of Cinnamon Blonde (shown above) or Dark Mahogany finish.

P-A-B-X sales!



Modern dial phones are used with AE P-A-B-X systems. Offered in a choice of 10 decorator colors.

AE Sales Kit includes everything you need to promote P-A-B-X. Built on promotions used by many independent telephone companies.

YOU GET STOCK DELIVERY ON 6 P-A-B-X MODELS!

AE stocks a P-A-B-X board to meet every need of your subscribers. This means you can offer businesses, large and small, a ready-made P-A-B-X system. It means you can give quick service, too!

YOUR CUSTOMER GETS TOP QUALITY!

The backbone of AE P-A-B-X boards is quality. Components are identical to those used in the famous Strowger central office equipment. That's why telephone companies find AE P-A-B-X boards provide dependable service and minimum maintenance.

YOUR CUSTOMER GETS OPTIONAL SERVICES!

AE offers 15 auxiliary services for P-A-B-X systems. These optional features provide additional service for your subscriber — and extra revenue for you! Ask for further information on our complete line of P-A-B-X auxiliary services.

YOU GET A FREE SALES KIT!

Prepared by P-A-B-X sales experts. Includes selling plan, complete catalog, sales promotion folders, mailing piece, suggested sales letters, sample survey form and proposal—even a sample contract! To get your free kit, write Automatic Electric Sales Corporation, Northlake, Illinois. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16.

AUTOMATIC ELECTRIC

Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

"Why do so many small exchanges

All-relay dependability plus jack-in flexibility! These are two reasons why over 1,200 small exchanges save money with the Leich Dial System.

Because the Leich Dial System is all-relay, there's simply less to go wrong.
A unique arrangement eliminates thousands of soldered connections.
Leich relays have been tested for millions of operations without failures.

Expansion is easy and economical. You can add 10 lines by simply jacking-in a 10-line relay bar.
Line finder switches, connector switches, selector switches, and link relay bars are also jacked-in.
No expense for factory installers, no wiring, no soldering.

Additional 100-line bays may be added with the same jack-in feature.

A Leich sales engineer will be glad to show you how the Leich Dial System saves you money.
Write today – without obligation.

LEICH GENERAL SYSTEM
Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

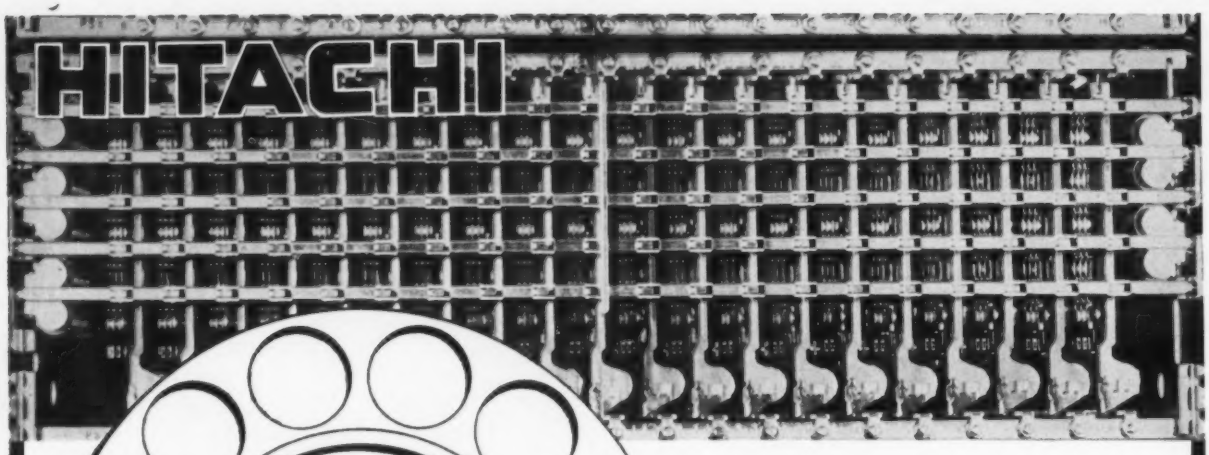
LEICH SALES CORPORATION • 427 WEST RANDOLPH STREET • CHICAGO 6, ILLINOIS

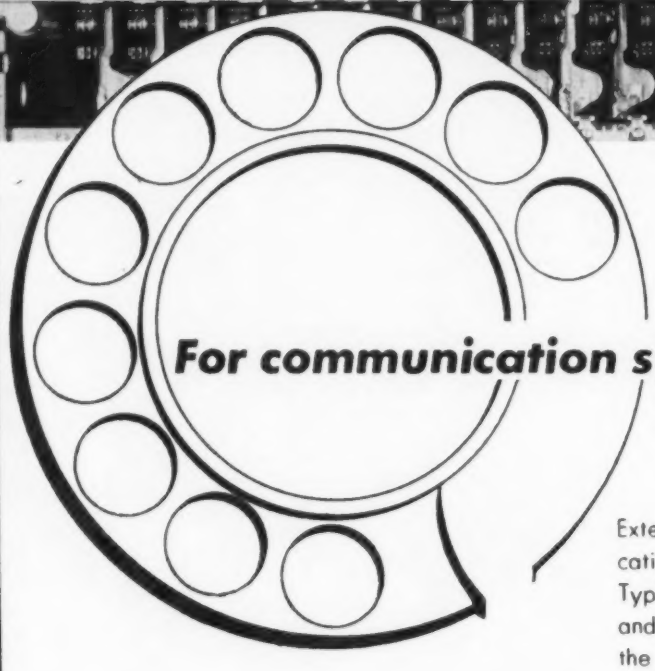
PACIFIC COAST: 11401 W. PICO BLVD., LOS ANGELES 64, CAL. EAST: 3651 CONNECTICUT AVENUE, YOUNGSTOWN, OHIO

SOUTHWEST: 1227 SLOCUM STREET, DALLAS 7, TEXAS SOUTHEAST: 5126 SOUTH LOIS ST., TAMPA 11, FLORIDA • 2918 W. MOORE ST., RICHMOND, VA.

manufacturers of telephones, switchboards and related apparatus since 1907

HITACHI





For communication systems, call Hitachi

- Telephones and Switchboards
- Carrier-Current Communication Equipment
- Radio and Television Broadcasting Equipment
- Parts for Communication Equipment
- Analog and Digital Computers

Electric Wire and Cable

Extensive Hitachi experience with communications systems is reflected in the handsome Type HA-6 telephone set. Its light, compact and sturdy body is tough enough to withstand the shock of being accidentally dropped to the floor. Other outstanding features include high-fidelity transmission and reception, dust-proofed ratchet for ever-smooth dialling action, and clear and commanding bell-tone.

Today's telephone communications authorities are now employing the Crossbar System Automatic Telephone Switchboards in addition to the time-proven "step-by-step" Strowger System. They are finding that the Crossbar System offers many advanced facilities, fewer maintenance problems, minimized failures and longer service life, and that these features are making it ideal for unattended operations. Hitachi has devoted particular attention to the development of the Crossbar System, and consignees continue to report gratifying operating results.

Hitachi, Ltd.
Tokyo Japan

Cable Address: "HITACHY" TOKYO

ORBIT INDUSTRIES *Announce*

A NEW REVENUE PRODUCING ITEM

Flexicom

HOME INTERPHONE SYSTEM

Just like the equipment currently being advertised in national magazines.

After three years of extensive development and field trials, the home interphone equipment is now available to meet the growing industry demand for this service.

MODEL DR-5 REMOTE UNIT

The SD-5 Switching unit provides for separate control of the door unit.

CONTROL UNIT D-5
(cover removed)

FEATURES

- DOOR ANSWERING FROM NEAREST PHONE
- ROOM TO ROOM INTERCOM
- MONITOR THE NURSERY
- HOME SECURITY AND CONVENIENCE
- LOW COST—INCREASE DEMAND
- TRANSISTORIZED—LOW MAINTENANCE
- COMPACT AND ATTRACTIVE
- USE WITH STANDARD 2-LINE PHONE

ORDERING INFORMATION

D-5 CONTROL UNIT COMPLETE WITH ONE DR-5 REMOTE UNIT	$49.50
ADDITIONAL DR-5 REMOTE UNIT	9.50
SD-5 SWITCHING UNIT	10.00

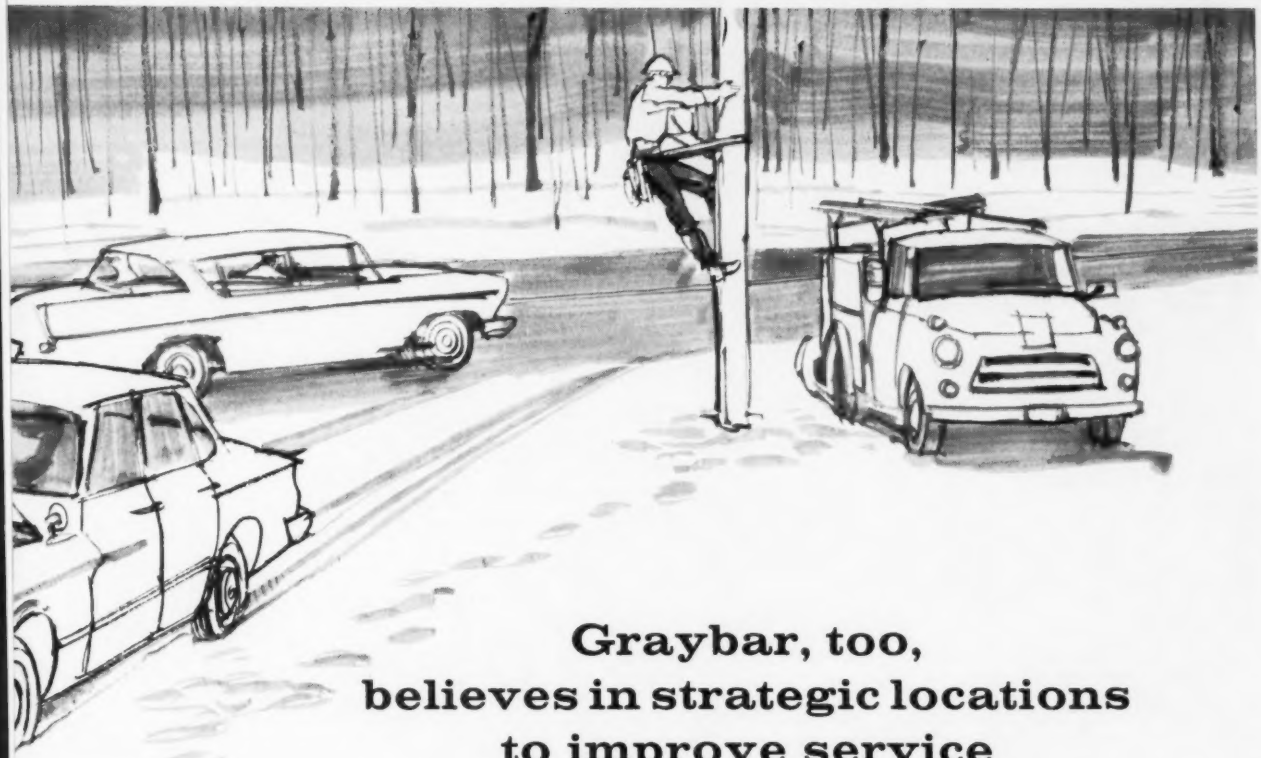
All prices FOB Vienna, Virginia

Write or Phone for Complete Details

INTERNATIONAL TELETRONICS, INC.

644 BRANIFF AIRWAYS BUILDING • DALLAS, TEXAS • PHONE FLEETWOOD 7-8353

HONE
TELEPHONE



Graybar, too, believes in strategic locations to improve service

Strategic locations can be vital . . . whether for the trouble-plagued traveler . . . or for those emergencies when a telephone company needs immediate delivery of close-at-hand equipment.

Providing independent telephone companies with what they need *when* they need it, is one reason Graybar maintains over 130 strategically-located warehouses across the nation — all stocked with essential materials and equipment. And Graybar is the *only* independent distributor serving independent telephone companies coast-to-coast.

From these locations you can obtain *everything* you require. You also get that extra measure of genuinely personal service that comes from an *independent* company . . . a company operated by the people who built it, own it, and want to increase its value to customers.

Next time, call in your Graybar man. He is *strategically* near-at-hand; always eager to serve you personally.

995

The only independent distributor serving you coast-to-coast

GraybaR

ELECTRIC COMPANY, INC.

420 LEXINGTON AVENUE, NEW YORK 17, N. Y. • OFFICES IN OVER 130 PRINCIPAL CITIES

IT CAN BE DONE!

Good Public Relations Can Be Consistent With High Directory Revenues

A Berry directory salesman is well versed in the art of public relations. He knows that service is the basis for confidence, and confidence is the foundation on which sound sales are built. The business customer sees the Berry salesman as a friendly, reliable representative of the telephone company, who is genuinely interested in helping his business prosper through Yellow Pages advertising. With customer relations foremost in mind, L. M. Berry and Company contributes to the favorable public image of the telephone companies it serves, at the same time increasing directory revenues and profits. Let us show you how It Can Be Done!

for more information, call or write....

L. M. BERRY AND COMPANY

Telephone Directory Advertising Exclusively

YELLOW PAGES by BERRY

HULMAN BUILDING · DAYTON 2, OHIO · BALDWIN 4-7421

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR
AND EDITOR, PUBLIC UTILITIES FORTNIGHTLY

Postmaster General Day stops two electronic mail handling proposals inaugurated by Eisenhower administration. Lockheed Aircraft has study made on communication satellites. Progress on Minimum Wage Bill reported.

THE NEW Postmaster General, J. Edward Day, presumably reflects the thinking of the Kennedy administration in his recent actions blowing the whistle on two electronic mail handling proposals of the Eisenhower administration. Since one of these—fast mail facsimile—would enter the field of electronic communications, and since Postmaster Day suggested that it might better be left to private enterprise at this time, telephone companies should take note of these recent developments. The other program halted by the Kennedy administration's postal authorities concerns the "all-automatic" post office at Providence, R. I., developed by the International Telephone & Telegraph Corp.

The situation is complicated by somewhat conflicting explanations as to why the Post Office Department wants to drop these two innovations in the technique of handling mail. The official explanation from the Post Office Department is that both fast mail facsimile and the Providence, R. I., automated post office were too costly at this time and that the performance of the automatic post office was not living up to expectations of efficiency.

But there is grumbling among the Republican opposition in Congress that these were two spectacular postal handling ideas that were launched under the Eisenhower administration with such widespread publicity that the new crowd in Washington would like to put them into deepfreeze. The implication is that they might be resumed at a later date when political credit, such as it might be, could not be linked back to the Eisenhower administration, and when the explanation could be made that the new administration had found a way to make these things work, whereas its predecessor could not make them work well enough.

Whatever the real reasons, officially or unofficially, the decision of the post office to drop the fast mail facsimile should have considerable impact on both the telephone and telegraph industries. It will be recalled that when former Postmaster General Summerfield unveiled fast mail facsimile last year, it was dramatized by having President Eisenhower send a letter from Washington to a friend in Los Angeles, and receive a reply within the hour. This was done by a facsimile process transmitted electronically from coast to coast.

It was clear then, and it is clear now, that if the post office were to embark on any widespread promotion of such fast mail technique, and if it were generally accepted by the public, it could pose a real challenge for the telegraph business and indirectly to the telephone business. Certainly, if the rate differential was sufficiently attractive, a considerable volume of long distance telephone traffic, which could be suitably handled by fast mail facsimile, might be diverted to the cheaper form of communications.

Western Union's answer to this challenge was a demand that the Post Office Department "farm out" the fast mail facsimile business to private enterprise (such as Western Union) rather than engage in such operations directly. It was pointed out that the post office farms out other technical and business aspects of its operations.

So now we have an answer even though it may be a temporary one. Uncle Sam is *not* going to go ahead in this area. On Mar. 7, Postmaster Day said that his department will drop the experimental facsimile speed mail program because it cost too much. Day, at a news conference in Chicago during his tour of major post offices in the United States, said the department invested about 4.5 million dollars in the project but has decided to drop it because it looks like too costly a way to send mail. *He suggested private enterprise might develop such a system if it were considered necessary.*

Day said the Kennedy administration would push for the postal rate increase called for in Eisenhower's budget. "Without the increase the postal department will go 900 million dollars into the red," Day estimated. He stated this would be the biggest deficit in the department's history, "But it will nevertheless take a tremendous effort to get congressional approval of any rate increase." The postmaster said first-class mail was "just about" meeting its cost today in contrast to the time when it used to yield a 40 per cent profit. He pointed out that it had been customary to earn a profit on first-class mail to make up some of the deficit on other postal services.

With respect to the automatic post office at Providence, R. I., Day said that Congress had launched an investigation. And he added that automation in the post office should not be over done. He pointed out that industrial methods of automation, which presup-

poses a certain amount of items damaged or destroyed in handling processes, could not be used for the United States mail because the department is responsible for every piece of mail which could possibly be delivered to its destination.

There are rumors, however, that union officials have not been too enthusiastic about a program for automatic handling of mail which might result in at least a temporary loss of many thousands of jobs now performed by postal workers.

In Washington, D. C., a Post Office Department official said that the government had stopped making lease payments to a subsidiary of ITT for automatic mail handling equipment at the Providence, R. I., post office. It was indicated that the equipment is "not working" and a House Appropriations sub-committee, which is investigating the situation asked the post office to stop payments to the ITT subsidiary, Intelex Systems, Inc. Post Office Department lawyers are reported to be studying its contract with Intelex "to be sure we legally can" stop payments, but they have been stopped at least "for the moment." The rental contract called for payments to Intelex of 1.4 million dollars a year.

According to *The Wall Street Journal*, a spokesman for ITT said: "We have had no official notice from the Post Office Department that payments to Intelex have been stopped."

There are further indications that the Kennedy administration will part company with Eisenhower's long-held ideas for raising second and third-class and parcel post rates. These classes generally cover magazines, newspapers, direct advertising mail, and merchandise shipments, and such "public service" mail as weekly newspapers, books mailed to libraries, and publications for the blind. The Eisenhower administration was in favor of sharply limiting these special classes, which account for part of the postal deficit. The Kennedy proposal is likely to retain many of them.

Postmaster General Day said he is studying a return to twice-a-day home mail deliveries, but no decision has been made. The second delivery, which was dropped during the Truman administration, would add 176 million dollars yearly to expenses, Day estimated.

More Light on Satellites

How soon can communications satellites become profitable? The Bell System, which has taken the lead among privately-owned companies in research and planning in this field, doubtless has its own ideas about this question, but it is interesting to note, occasionally, how others feel about it. In early March in Washington, D. C., there was privately circulated a study on this subject indicating that communications satellites might begin to pay off in the early years of the coming decade. This study was made for Lockheed Aircraft Corp. by the management consultant firm of Booz, Allen, & Hamilton. The purpose of the study was in connection with a possible venture in the operation of a satellite network and it explored the future markets, economic feasibility, etc.

The United States Independent Telephone Association Sub-committee on Direct Distance Dialing met with representatives of American Telephone & Telegraph Co. in New York on Feb. 23 and 24 for discussion of the mechanization of TWX service, technical details of the new Wide Area Telephone Service (WATS) recently introduced by the Bell System, and several operating details of DDD. Minutes of the meeting are being prepared and may be obtained by writing to USITA. Attending the meeting were (left to right): J. P. Ringland and R. J. Brady, both of AT&T; J. J. Grumblatt, General Telephone & Electronics Service Corp.; E. F. Corbin and C. F. Roth, both of AT&T; C. M. Davis, General Telephone Co. of California, Santa Monica; Z. E. Barnes, W. C. Farrell and A. Kohan, all three of AT&T; H. A. Barrows of California Water & Telephone Co., Monrovia; O. Myers of Bell Telephone Laboratories; F. L. Kahn of Automatic Electric Laboratories, and J. W. McNamara of West Coast Telephone Co., Everett, Wash.

The Booz, Allen & Hamilton study has not been made public and so far has been circulated mostly within federal agencies in Washington and private industry officials elsewhere. But the findings and conclusions are being followed quite closely.

For one thing, the study suggests that the American Telephone & Telegraph Co. might have some competition in this field from a combination of other communications and electronics concerns. As compared with the Bell System program (already unveiled in filings with the Federal Communications Commission) of a multiple-satellite system, costing about 170 million dollars and operating within a few years, the combination project of other electronic and manufacturing concerns would concentrate on a technique of two or three "stationary" satellites.

The study for Lockheed suggests, as a starter, two of these stationary satellites: One which would remain constantly over the Atlantic and the other over the Pacific. Admittedly these stationary satellites would be more costly and technically difficult to establish. Once established, however, they could be serviced by a score of ground stations around the world.

The whole deal would cost upwards of a half billion dollars, of which over half would be for primary development and setting up operations, and the balance for maintenance, promotion, and replacement for the following 10 years.

The relative merits of these two different approaches are something which the scientific and technical experts in and out of government will have to thresh out before the final decisions are made. In addition to technical problems, there are also obvious economic, regulatory, political, and international aspects. Whatever plan is followed, however, the Booz, Allen & Hamilton study points to the necessity for developing a communication satellite system in time to take over the rapidly growing traffic in international communications.

References are made to the inability of underwater cables and land surface relay to handle the projected growth of this traffic in the years ahead. Figures are cited which suggest that the number of international telephone calls will increase 500 per cent within the next decade and the revenue from such business in similar proportion. In other words, this rising demand in international communications is expected to

outgrow existing and planned cable capacity before 1970.

Of course, much of this has been said before and clearly demonstrated by planning studies and proposals already unveiled by the Bell System. Obviously communications satellites, whether dual-stationary or multiple-orbiting, will provide more channels at much less expense than underwater cables. In addition, they would have the operation advantages of underwater cables with respect to avoiding interference from static or jamming and even to some extent magnetic storms. To build enough undersea cables to provide the same number of telephone channels that a communications satellite would make available would probably cost more than 10 times as much as the satellite.

Of course, this is long-range stuff looking towards the end of the present decade as far as the combination of electronic and manufacturing companies are concerned. It is brought out that the advantage of the Bell System is that they are already at the post and ready to go. The Bell proposal has an additional advantage, it is said, in that if and when it is established, it will probably pre-empt the available communication satellite business in the United States because it would accommodate far more than the volume of traffic demands during the early years. There is also an additional advantage, it is stated, of having a system already in operation and, therefore, likely to attract more support than an untried and entirely different approach. In other words, the difference, if any, may boil down to the axiom of military strategy which the plain-spoken Civil War general Nathan Bedford Forrest, once summed up bluntly with the famous expression "git thar fustest with the mostest."

In all of these speculations about the future of satellite communications there must be kept in mind possible complications from government agencies. In Washington last week, the possibility of duplication of space communications systems by the civilian and military was pinpointed by Richard S. Morse, Army Assistant Secretary for research and development. He said that it would be necessary for the Army and the National Aeronautics and Space Administration "to review plans" and avoid duplications in the space satellite program. This clearly raises the question of just who will control the space communications programs. Defense Secretary McNamara entered the picture from another quarter when he ordered the Air Force to take almost total responsibility for research and development of space programs, as compared with the Army and Navy.

SAFETY THUMB TACKS

By John A. Bracken

Bits of safety reasoning, either pointed or flat, depending upon the way you look at them.

"*Safety*—is our most important assignment."

•

"*Safety*—to be of vital help personally—must be practiced."

•

"First, think *safety*—second, believe in *safety*, and third, practice *safety*."

•

"Prudent people provide protection—they practice *safety*."

•

"Follow *safe* practices—and your no-accident rating will become 100 per cent."

The suggestion that the military take over the communications satellites was made in an Army reply to questions submitted by the House Space Committee. Lieutenant General Arthur G. Trudeau stated that greater emphasis should be placed on the military use of communications satellites and he stated that the "commercial aspects should be subordinated to the military, particularly at this time."

Before leaving office, President Eisenhower initiated a policy of cooperation between government-owned space facilities and the Bell System and other companies which might seek to get communications satellites into orbit. This policy has in the past been supported by the National Aeronautics and Space Administration.

Minimum Wage Progress

The House Labor Committee took a final shot at the Wage-Hour Bill before clearing it for floor action, which will affect a number of telephone companies if the bill is enacted as reported. The change, from the draft approved by the sub-committee, was only one word. It substituted the word "company" for "exchange" in the provision (Section 8) which now exempts telephone operators' wages at small exchanges from complying with the minimum wage provisions.

As reported out by the House Labor Committee, this exemption now applies to "any switchboard operator employed by an independently owned public telephone *company* which has not more than 750 stations." The change of this wording simply carries out an interpretation made last year in a Senate Labor Committee report that the exemption was intended to apply only to small Independent companies and not to operators at exchanges of large Inpendent or Bell System companies.

So, actually, what the House Labor Committee did was to spell out this interpretation by making the pending Roosevelt-McNamara Bill (H. R. 3935) perfectly plain. There can now be no mistake that neither Bell Companies (which have not used the exemption anyhow) nor any Independent telephone company serving more than 750 stations can use the operator wage exemption—if the bill is finally enacted in this form, as seems likely.

The House committee also recommended that the increase in the minimum from $1.00 to $1.25 an hour should progress in two stages rather than three stages as proposed by the Kennedy administration. In other words, the boost in the wage floor would go from $1.00 to $1.15 four months after the bill is enacted and to $1.25 an hour two years after that.

The committee bill departs again from the administration's recommendations by including hotel and restaurant workers in establishments doing 1 million dollars or more in business a year. The amendments to the Wage-Hour Act will be the first significant legislation which has received consideration by Congress since the beginning of the session. There was expected a sharp floor fight with numbers of amendments being offered, especially concerning the extended coverage provisions. Republican opposition exists to the 1 million-dollar-gross business limitation of the hotel-restaurant exemption. Republicans believe that the law should not be based on volume business, but on locations and numbers of an employer's establishments. The bill already has gone through several changes and it will probably undergo more before it reaches the President's desk.

Stromberg-Carlson's EXCLUSIVE magnetic tape recording means more profitable toll revenue!

How does the XY® Toll Ticketing System help you keep all your earnings?

The key is magnetic tape recorders that record and read out *everything*—including, if you desire, incompleted calls. You have a 100% record of everything that happens.

Every bit of this information is valuable to you. It helps you keep a constant, accurate check on traffic patterns that you can analyze for greater efficiency of operation. By knowing everything your XY Toll Ticketing System is doing, you're in a perfect position to protect your revenue. Other systems may discard incompleted call tickets, depriving you of important information.

Magnetic recording offers additional advantages. It requires virtually no manual attention, so it saves time and labor. Tapes are permanent—can be used over and over again.

Your XY System is more modern than others because it's more electronic. It's compact, easy to maintain—and it's ready for P.P.C.S. now. *It's the only system that reads out directly to punched cards.* It also reads out to punched tape and electric typewriter.

Protect your toll revenue . . . increase your profit—with XY Toll Ticketing. Make your Stromberg-Carlson representative show you exactly how. In Atlanta call TRinity 5-7467; Chicago: STate 2-4235; Kansas City: HArrison 1-6618; Rochester: HUbbard 2-2200; San Francisco: OXford 7-3630.

XY® TOLL TICKETING AT WORK

Systems installed or on order as of January 15, 1961:

ARIZONA
Holbrook
Pinetop
Showlow
Snowflake
Springerville
St. Johns

ARKANSAS
Fordyce
Bearden
Sparkman

CALIFORNIA
*Bakersfield
Courtland
Clarksburg
Isleton
Walnut Grove
Elk Grove
Exeter
Lemon Cove
Garberville
Alderpoint
Covelo
Laytonville
Leggett
Piercy
Manteca
Ripon
Sanger
Weaverville
Hoopa
Hayfork
Willow Creek

FLORIDA
Kissimmee
*Leesburg
Mt. Dora
Ocala
Belleview
Oklawaha
Williston

ILLINOIS
Dixon
LaHarpe
Carthage
Dallas City
Hamilton
Nauvoo
Warsaw

INDIANA
Franklin
Bargersville
Marietta
Nineveh
Providence
Trafalgar
Whiteland
Monticello
Chalmers
Flora
Rensselaer
Wheatfield
Wolcott
Plymouth
Argos
Bourbon
LaPaz
Leiters Ford
Walkerton
Warsaw
Atwood
Burket
Cromwell
Etna Green
Leesburg
Mentone
Milford
Millwood
Tippecanoe

IOWA
Creston
Afton
Orient
Prescott

LOUISIANA
Carlyss

MARYLAND
Ft. Meade

NEBRASKA
Scottsbluff
Gering
Bayard
Broadwater
Lewellen
Lyman
Minatare
Mitchell
Morrill
West Morrill
Oshkosh

NEVADA
Henderson
Yerington
Smith

*Readout equipment only

NEW YORK

AuSable Forks
Keeseville
Wilmington

East Pembroke

Westfield
Brocton
Findley Lake
Mayville
Ripley
Sherman

NORTH CAROLINA

Monroe
Goose Creek

OHIO

Aurora

Bainbridge

Chardon

Elyria
Emerson
Fairfax
Glendale

Hiram

Hudson

Newbury

Northfield

Russell

Twinsburg

West Richfield

OREGON

Creswell

**Hood River*

Merrill
Malin
Bonanza
Lorella
Newell
Tule Lake

Myrtle Creek
Azalea
Canyonville
Glendale
Riddle

Redmond
Culver
Sisters

Sheridan
Grand Ronde
Willamina

White City
Butte Falls
Eagle Point
Prospect
Shady Cove

PENNSYLVANIA

Bedford
Claysburg
Everett
Fishertown
Hopewell
Schellsburg

Chambersburg
Dry Run
Fayetteville
Greencastle
Marion
McConnellsburg
Mercersburg
Newburg
Shippensburg
St. Thomas

**Export*

Delmont

Harrison City

New Alexandria

Hanover
Biglerville
Fairfield
Gettysburg
Littlestown
New Oxford
York Springs

Kittanning
East Brady
Elderton
Ford City
Rural Valley
Worthington

Leechburg
Apollo
Templeton

TENNESSEE

Kingsport
Church Hill
Gate City
Sullivan Gardens

VIRGINIA

Manassas

Wytheville
Austinville
Bland
Ceres
Marion
Max Meadows

WASHINGTON

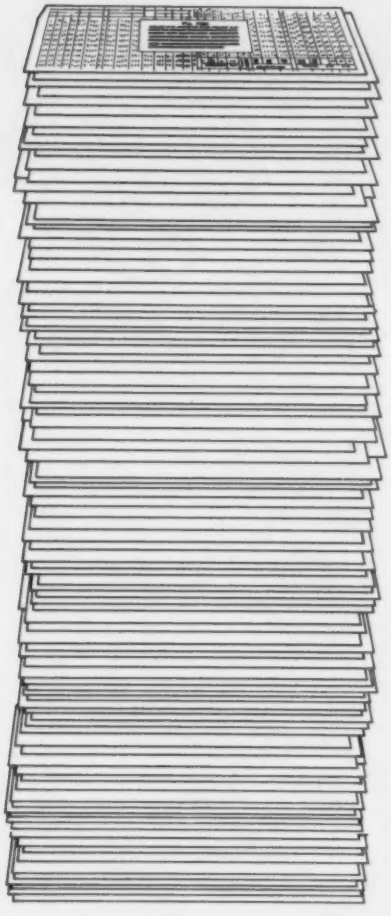
Everett
Bothell
Burlington
Coupeville
Duvall
Granite Falls
Halls Lake
Kirkland
Marysville
Monroe

Kalama

Lynden
Acme
Blaine
Custer
Deming
Everson
Ferndale
Laurel
Maple Falls
Sumas

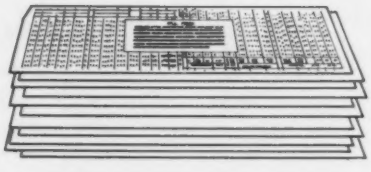
Mt. Vernon
Oak Harbor
Richmond Beach
Sedro-Woolley
Skykomish
Snohomish
Stanwood
Sultan

Eliminate costly billing errors... with XY® Toll Ticketing!



MOST SYSTEMS

This stack represents possible billing errors that may occur in your toll operation. Erroneous tickets can and do produce errors resulting in *lost revenue!*



XY TOLL TICKETING

This stack represents the tiny percentage of billing error you can expect with an XY® Toll Ticketing System. Compare this column with the one on the left to see how much you benefit.

STROMBERG-CARLSON
A DIVISION OF **GENERAL DYNAMICS**

A Look at the

COMPONENTS OF PBX SERVICE

By Gilbert R. Brackett

PEOPLE EXPRESS themselves each time they phrase a thought. Unnecessary words only tend to muddle the essential details of the phrase, distracting the listener's attention from the idea one wants to convey. When a phrase is short and to the point, without being abrupt, it can be considered good.

"Thank you;" "Please;" "I'm sorry;" "Good morning;" etc., all have their place in a PBX attendant's vocabulary but should be used sparingly. Overuse of trite phrases is apt to convey a feeling of studied formality and may leave the listener disturbed or uncertain. Normally, pleasantries should be used over the telephone as often as in a face-to-face conversation. A careful analysis of results will inform a person if a particular phrase he is using is adaptable to his voice.

While a pleasant voice, good word choice, and a courteous demeanor are factors that promote good service, they are not all the components of service overtones. There are many operating irregularities. I would like to mention a few that seem to be particularly obnoxious to people using PBX services.

Answer Imperfections

Slow answers to trunk signals create an initial unfavorable impression. They also bring about an inefficient use of facilities which cost the subscriber a good deal of money. Inattention; slow or false motions; signals hidden by memos, tickets, or other materials; overloaded conditions; failure to overlap and other objectionable operating practices contribute toward answer imperfections.

Non-identifying answering phrases irritate a caller and delay the completion of his call. Generally, they necessitate repetition, which wastes time and adds to the costs of the service to the PBX subscriber, as well as to the annoyance of the calling party. Such irregularities usually occur at a PBX where the attendant may not understand the consequences that might follow inadequate identification to the calling party.

Sometimes an attendant will "cut-out," leave the line too quickly, irritating the caller and leaving him with the impression that he has been treated discourteously or indifferently. Such a practice leads to work duplication. Instead of improving, it actually reduces the speed of operation, because the attendant misunderstands the caller's order.

Repetition Delay

Unnecessary requests to repeat an order give the impression of inattention or carelessness and delay the completion of the call. Lack of confidence, brought about by unfamiliarity with the various ways in which orders are likely to be received, causes an attendant to request repetition, so does difficulty in hearing. If not due to a physical handicap, it is often attributable to a noisy operating room—an office equipped with many typewriters, adding machines, etc. When possible, a PBX switchboard should be located where the hubbub of a busy office is at a minimum.

If a call is delayed, and a progress report is not given by the attendant, the caller may assume his order is not receiving the proper attention. He cannot signal the attendant to determine the reason for a delay, so if not informed of the status of his call, he may abandon it.

Reaching the wrong extension on an incoming call is probably the number one enemy to good service. It is extremely annoying to both the calling and called party. There is the loss of time to the calling party, the called party, and the attendant and holding time on the trunk circuit is considerable.

Dialing Accuracy Important

As DDD expands, wrong numbers can become more than a headache. PBX's originate the greater percentage of all long distance calls. Therefore, we can expect a proportionate number of such errors to originate at PBX switchboards, even though attendants are usually more skilled in dialing than the average toll user. Anything that can be done to improve PBX dialing accuracy is a step in the right direction.

Connection cut-offs are in the top bracket of unpleasant happenings. They are the source of extreme irritation and help to confirm the caller's impression that his call has received careless handling. Of course, there will be fewer and fewer of such annoying incidents as automation advances in our industry. Even so, there will always be some calls that require operator handling, and occasionally, our equipment will fail, and service troubles will result. Though the automation of both local and toll services is increasing at a rapid pace, there should be no letup in our constant battle for service improvement.

The plugging out of a call, before the attendant is ready to answer it, can start a multitude of reactions. On an incoming trunk call, the ringing signal stops when the plug enters the jack, and the calling party may abandon the call because he is uncertain of what happened. He hears a slight click, and the ringing stops, but no one answers. Should he redial the number and run

into the same condition, the caller's suspicions would be confirmed.

Plugging Out Adds to Charges

Many toll calls today become chargeable when the PBX attendant plugs out the signal. With automatic ticketing there is no way for the calling party to know that his call is being charged for every time he dials the distant number. Plugging out a call could add to the minutes charged, even though the caller stays on the line.

If the switchboard is composed of several positions, plugging out a call deprives an adjacent operator of the privilege of answering it. Such a practice does nothing at all toward speeding the call to completion. It has no courtesy value. The fact is, it is a sort of sneaky way for the attendant to appear to be handling the signals on her board quickly, when actually she is delaying those calls she plugs out.

The caller may be further vexed by an attendant's unsatisfactory speech and manner. An indistinct voice, a faulty inflection or emphasis, can promote an increase of errors. It can add to operating time.

Maladjustment of an attendant's headset or an overloaded traffic condition, can contribute to poor transmission of her voice. Everything possible should be done to acquaint the attendant with the tremendous importance of excellent diction and distinct, unhurried speech and manner.

Recall Means Help Needed

Recall signals are undoubtedly among the top enemies to good service. A recall indicates that people on the line need help. Perhaps a wrong number has been reached, or the customer has completed his business with the party to whom he has been talking, and wishes to be transferred to another extension. Transfer of a long distance call can be delayed into an overtime charge if not made immediately. A recall signal may be difficult to handle because it is out of the attendant's direct line of sight; and therefore, it is not easy for her to see, especially when she is distracted by other duties, or by some animated event taking place in the office.

It is important that the attendant make sure the buzzer key is operated when traffic is light. It is equally important that she does not have the buzzer key in the "on" position unnecessarily. The constant vibration of the buzzer can be very annoying to nearby workers. Materials not required for switchboard operation should be kept off the keyshelf. Cord signals can be obscured by tickets, memos and other materials on the keyshelf.

Stay On Line

There are many reasons why an extension user should stay on the line after passing a call to his operator. The call is completed more quickly when the calling party is available to provide added information when it is needed.

It is discourteous for the attendant to say to the called party: "Hold the line, Mr. Grimes. Mr. Cutting wishes to speak with you!" Perhaps Mr. Grimes is just as busy as Mr. Cutting. Ethically, the burden of waiting is upon the calling party, not on the called party. Being on the line avoids chargeable time on long distance calls. The 15 seconds interstate and the 5 seconds intrastate timing allowances on long distance calls do not give the attendant much time to recall an extension user who has left the line.

Many of such calls come about because the extension user does not place his own calls. When DDD becomes fully operative, the subscriber will lose the advantage of this extremely fast service, if he must go through the attendant to establish all long distance calls and does not remain on the line until the distant party answers.

Avoid Slow Disconnects

Slow disconnects are an enemy to good service and add to service costs. The sooner the disconnect is made after the conversation ends, the sooner the trunk will be available to another incoming or outgoing call. If the connection is on a through-supervision type switchboard, even though a cord may still be in the jack, the line becomes available to incoming calls as soon as the extension hangs up.

Therefore, the trunk may be chosen by the central office equipment for an incoming call and the station that just hung up would be re-rung as a wrong number.

If the board is a non-through supervision type, a slow disconnect can become quite costly on long distance calls, since the central office equipment will receive no disconnect signal, until the PBX attendant takes down the connection.

Customer management of a PBX should know enough about the overtones of good service to be able to detect specific features of call handling which their customers find particularly pleasing or annoying. It is important that PBX attendants and extension users completely understand the underlying principles and objectives of good service and apply them to their work.

Included in Training

Definite and specific plans for improving the tone of service should be made a part of all PBX training activities. The point is to bring out the best in each PBX attendant, at the same time preserving her naturalness and fostering her eagerness to serve.

Toll operators can do a great deal to help train the PBX subscriber. Many opportunities for rendering a pleasing service exist in handling a toll call. A large portion of long distance calls are of a simple nature, requiring a minimum of conversation between operator and caller, but many involve detailed handling calling for initiative and judgment.

Specific opportunities for service arise out of situations such as those met in the handling of many person-to-person calls; calls meeting with delay; AG requests; WH reports and calls with meager call details. Wide awake toll operators will be able to recognize out-of-the-ordinary conditions and respond to the service needs of the particular situation. When the handling of toll calls involves more than one long distance operator, courteous, business-

Dial "O"

by Rose Marie Rutledge*

We start off the morn with the greatest of ease.
Adjusting our headsets, opening our keys.
Then on come the lights that start off our day.
We know after 8 there'll be no time for play.

"Give me Rochester, Churchville, Brockport," you cry.
"And please hurry ma'am, time's passing by!"
Swish go our cords, round go our dials.
It's certainly great how we cover the miles.

Come afternoon, and our day's almost done,
But we're still alert, there's no time for fun.
Onward, and steady, your calls are put through,
Until 5 o'clock, when comes a new crew.

We now end our day by saying good-bye.
But each of us girls heave a contented, small sigh,
For all day we have served you and helped for awhile,
Who are we? Why, your operators, "The voice with a smile."

*Rose Marie Rutledge is a long distance operator for Ogden Telephone Co., Spencerport, N. Y.

like dealing between operators will go a long way toward convincing the PBX people that courtesy brings a feeling of warmth to those receiving it.

Use Common Sense

Routines and guides should not be substituted for judgment and common sense in the handling of calls involving an unusual situation. Patience, sympathy, a willingness to listen and an eagerness to understand and be of service will help smooth out a trying situation.

Service becomes impersonal and often implies indifference when an attendant shows lack of cheerfulness and attentiveness. She should adapt her handling of each call to the requirements of the individual customer. For instance, she should be more patient with a caller who displays impatience or irritation, and more attentive when the customer appears to be in a hurry. The attendant's voice and manner should reflect her desire to be of assistance.

There is no simple definition that includes all the ingredients that go into making a service pleasing. The giving of an acceptable service is closely related to the development of good public relations and high employe morale. All departments should work as a team to insure coordination of efforts in providing an acceptable tone of service.

Two Other Phases

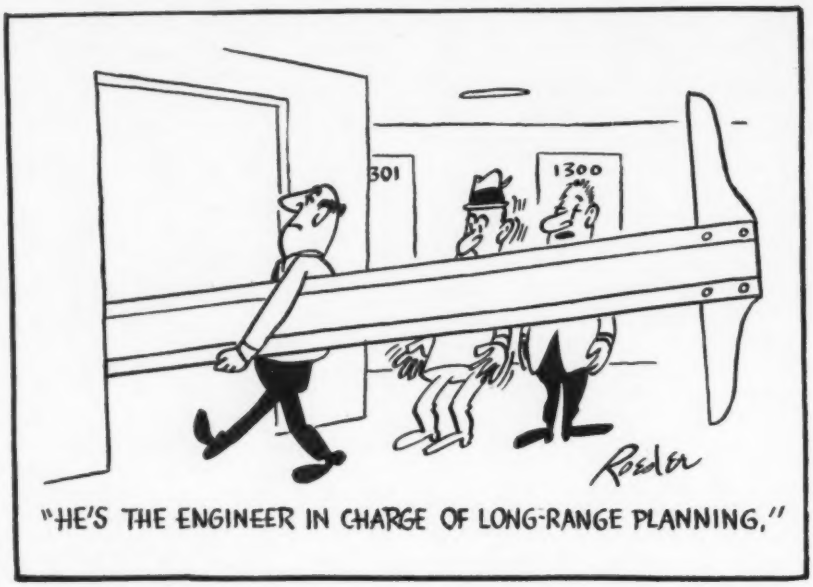
Aside from a pleasing tone, telephone users are interested in but two phases of service: (1) The speed with which connections can be made on the initial attempt to call the desired number and (2) the length of time it takes to reach it.

Ability, training and experience affect an attendant's capabilities as an operator. As an attendant gains experience, she decreases the hesitancy with which she takes each operating step, and each operation becomes more a matter of habit. As the days pass, her judgment improves. She refers fewer and fewer cases to her supervisor and handles her work in a more orderly fashion. She is considered fully experienced on her particular switchboard, when she has worked on it long enough to know unhesitatingly what to do and how, and when to do it.

The job of the average PBX attendant calls for close eye work, such as writing memos and tickets and reading bulletins and designation strips, etc.

Importance of Lighting

Good lighting over her switchboard will help an attendant work without eye strain and will promote her comfort and health, as well as her efficiency, accuracy and happiness on the job. Good lighting calls for adequate light levels and freedom from glare, shadows and reflections. Attendants spend about 90 per cent of their time at their switchboards. Their happiness and contentment in their work is directly affected by their job environment.



The modern attendant is a most valuable person. If her work is careless, she can create an unfavorable impression that could damage her firm's public relations. Through careful operating she can improve them.

Manner of Speech

An attendant is judged by what she says, and her manner of saying it. Some folks speak quickly. Others speak with difficulty. Some use simple words, a few speak in affected language.

All these differences of speech reveal character. Every word spoken by an attendant should be pertinent to the action which will result in a speedy climax to the caller's directive. A PBX attendant must make every word count. Every word she speaks must be related to the action, emotion, or event taking place on the call.

Qualities of a PBX Attendant

A short while ago I met an old PBX friend. She is chief operator at a PBX with 10 or 12 attendants under her supervision. We sat in a cafeteria discussing the PBX situation over a cup of coffee. I was expounding on the merits of PBX attendants.

"Anyone can become an attendant," my friend the chief operator stated.

"Surely you don't believe that," I said.

"But I do," she answered. "Operating isn't a hard job."

"I have worked with attendants for many years," I told her. "I have seen them operating in just about every state in the union. They are the same everywhere . . . self-reliant, anxious to please, courteous and nice to know. Everyone of them is an office diplomat.

"You must realize that the girls you supervise are tylers to the most important entrance to your company, and as such, they can win many friends for your company, or they can create an impression that could be very harmful to your company's public relations. Just think that over and, I believe, you will understand why I think the PBX attendant is a very important person, exceptionally important." I said much more; when I stopped for lack of breath, the chief operator agreed with what I had been saying. She remarked that she had sort of forgotten her days as an operator and was taking the importance of her job for granted.

Selling Attendant's Importance

I wonder how many PBX management people take their attendant and the job she does so lightly. I wonder just how good a job we have done in selling these important people to their management. I wonder if some of our own management folks are fully aware of the potential worth of the PBX subscriber.

If not, perhaps the fault lies in the complacency that is ours because of the enviable reputation we have won. But we cannot afford to bask in the sunlight of our past performances. Public opinion is a "will-of-the-wisp," as changeable as the winds of March. It could be our luck to stand at the peak of public acceptance today, and on the morrow, in deep humiliation, awaken to find it a memory.

How To Boost Long Distance Revenue

By D. G. PLASKETT*

WOULD YOU LIKE to make a profit without buying and installing any equipment? It sounds like a get-rich-quick scheme, doesn't it? But many telephone companies are doing it today. It's not so impossible, if we can convince our business customers that they can expand their business and increase their profits economically with the telephone. Let's consider first why telephone companies are going to the trouble and expense of sending men to discuss business communications with our white-collar customers.

A look at your company's annual report will indicate how much of the total is long distance revenue. Telephone companies are wondering what will happen to this portion of the revenue if a serious "recession" should occur. Would business attempt to economize by cutting down on long distance calls?

We can prove that long distance communications cost less, but are our customers aware of *how* they can economically do business by telephone? Unless they are made aware of how other businessmen have cut costs and increased sales, our long distance revenue is vulnerable.

The businessman has a telephone on his desk, and we have facilities to his distant customers. If we can show him how he can effectively and economically make use of these existing facilities, the gain in revenue will be clear profit; and the use and value of the telephone will become firmly established in the customer's operating methods.

Today's competition in the communications business means that telephone companies are having to fight for their markets. It has been estimated that by 1965, there will be approximately 17,500 private microwave systems operating in America.

The principal users of these private systems are power companies, pipelines, railroads and a few governmental agencies, but the FCC is considering extending this microwave frequency privilege to substantially all businesses. The estimated loss in revenue to telephone companies in 1965 has been calculated at 123 million dollars annually. To help stem this possible flow of lost revenue, telephone companies are seriously considering ways to make their communications product more useful to business firms.

The LDM Salesman

In the years just past, special services and equipment were supplied only to customers that requested them. Even colored telephones were considered custom items, and installers were asked not to encourage them. Although we have changed our emphasis since then, we still seem to be regarded primarily as suppliers of telephone sets. In order to increase the demand for our products, it is necessary to visit our business customers and discuss how the telephone can help solve their problems.

The Long Distance Marketing (LDM) salesman prepares for the visit by learning as much as possible about his prospect's products, territories and operating methods. Yellow pages advertising, trade journal and newspaper advertisements give clues as to how and where the prospect markets his products.

Once prepared, the LDM salesman calls the head official of the firm and asks for an appointment. Appointments help the salesman plan his day, assure him a welcome when he arrives at his prospect's office to demonstrate one of his recommendations.

The first phase of the visit is the fact-finding period. The salesman explains that in order to determine which idea is best, and how it should be applied to the customer's operations, he should know more about how the business operates and its plans for the future.

Open questions that cannot be answered with a "yes" or "no" bring out problems in collecting delinquent accounts, opening up new sales fields or meeting stiff competition in established fields. Of course, most businessmen are interested in cutting their operating costs and in increasing business. Often, during the discussion, a need for teletype service, private line service, or additional equipment becomes apparent.

After one or more problems are identified, the salesman can use the problem details to introduce a telephone application and solution to the problem. Since no contract or regular payments are arranged, and no shiny equipment is installed on the customer's desk, promoting long distance is promoting an intangible. The LDM salesman is successful when he has removed his customer's doubts and objections, and when he has aroused enough enthusiasm to be sure the recommendation will be put into effect.

The salesman shows his company's confidence in the recommendation by offering an initial supply of promotional material to help the businessman put the idea to work.

As the businessman applies the long

(Continued on page 30)

*Mr. Plaskett is with the Bell Telephone Co. of Canada at Kitchener, Ont. His 14 years experience covers work in construction, installation, toll central office and toll sales departments.

world's most beautiful, lightweight

It's a fact of the industry! Subscriber demand for the Cinderella phone is unprecedented . . . so is the demand among alert independent telephone companies! That's because this great new telephone *returns more revenue per investment dollar* than any other!

And it's a fact of the industry, too: when you're introducing a new subscriber unit, it's wise to rely on the company that gives you the unit with *all* the features and performance your subscribers will expect; plus, the type of service and promotional assistance *you* expect. You're wise to rely on ITT Kellogg . . . for the product, and the promotion.

Contact your ITT Kellogg Representative or ITT Kellogg direct.

ITT KELLOGG

A Division of
International Telephone & Telegraph Corporation
6650 South Cicero Avenue, Chicago 38, Illinois

Telephone Department
412 S. Fillmore, Corinth, Mississippi

Regional Offices and Warehouses:
CALIFORNIA: 23 Broderick Road, Burlingame, California, OXford 7-5780.
GEORGIA: 1594 Southland Circle, N. W., Atlanta 18, Ga., SYcamore 4-2441.
INDIANA: 802 Knitters Ave., Fort Wayne, Indiana, Eastbrook 4562.
IOWA: 1111 East River Drive, Davenport, Iowa, 324-0441.
KANSAS: 7th & Sunshine Road, Kansas City 15, Kansas, MAyfair 1-4418.
NEW YORK: 327 North West Street, Syracuse, N. Y., HArrison 2-9251.
TEXAS: 1359 Motor St., Dallas 7, Texas, Riverside 7-5191.

ITT Kellogg products available in Canada
through Standard Telephones & Cables Mfg. Co. Ltd.
9600 St. Lawrence Boulevard, Montreal 12, P.Q., Canada

telephone...the Cinderella

Colored gummed "Call Collect" labels feature company's name, services and telephone number. The labels are distributed by salesmen, through direct mail material or on invoices, to encourage a repeat order when the shipment is exhausted. These handy labels can also be retained for future use and serve as a "permanent" type of advertisement.

distance salesman's recommendations, and as his business grows, the need for additional equipment also grows. For example, a firm might have Special Reverse Charge Service (SRCS—Enterprise, Zenith, etc.) from a distant city to its offices. The firm could promote this special customer service and telephone number to its customers and potential customers by means of gummed advertising labels, memo pads, promotional letters and its regular advertising in newspapers, directory Yellow Pages, radio and television.

The resulting increase in calls and distant business could create a need for private line (FX) or teletype service. "Call Collect" invitations have also increased incoming calls to the point where additional telephone equipment and lines are required.

Some LDM Applications

A materials handling distributor was concerned about finding new industrial customers and keeping competition away from his existing business. As the LDM salesman talked to this prospect, the telephone continually interrupted their conversation as orders came in from local customers.

The LDM salesman seized this opportunity to convince the businessman that the sales cost of these orders was low, in fact lower than the expense of a personal visit. Also, he noted that customers felt free to order material when they needed it, instead of waiting until the next salesman visited them.

The distributor agreed to send "Call Collect" advertising labels to his customers and prospects on sales letters, sale bulletins and invoices. Training brochures were used to help instruct the telephone answering staff to receive orders, offer specials, and expand the size of the orders.

The training supervisor of an insurance company agreed that their agents should telephone out-of-town prospects for appointments to assure a full day's work in the distant city. The insurance company supplied training manuals and taught how to make appointments in their training classes; but on the job, many of the agents seemed to have trouble remembering the right answers to the prospect's objections.

The LDM salesman took the answers out of the training manual; and showed the supervisor how they could be printed on a compact, pocket-sized flip-chart. When the agent used the telephone, he could quickly use the chart to find a prompting phrase that would get him past secretaries and make the appointment.

"This is something we should have had long ago," said the enthused training supervisor. "We will have copies of this material sent to all of our 800 agents."

An investment dealer described his customer problems to an LDM salesman. He wanted to attract investors from four out-of-town areas, but the investors seemed to prefer to call the local dealers.

"The cost of a call is low," said the dealer, "but it seems enough to deter them from making the call. I'm willing to accept collect calls, but I have found there is also a hesitancy on the customer's part to reverse the charges."

The LDM salesman recommended SRCS (Enterprise service) from the four areas and provided a supply of gummed advertising labels to promote the new number. The SRCS also provided listings in the distant yellow and white directory pages.

After experience proves the value of doing business by telephone, many businessmen begin promoting their telephone numbers and SRCS numbers on calling cards, memo pads and matchbook covers.

The added telephone business also brings with it a need for additional equipment. A wholesale hardware company was persuaded to try inviting customers to call collect whenever they had an inquiry or an order. Five years later, the hardware firm required five private lines to handle the calls from out-of-town customers and permit their own staff to give better customer service.

Last February, this firm used 16,000 feet of auditorium space to display its products to invited buyers. Among the exhibits was a telephone booth with connections to the firm's private lines. The buyers were encouraged to use the private lines to call their offices regarding items on display.

"Many of our customers also have private lines that connect with ours," an official told me. "We want to publicize the fact that this network of private lines can be used to place orders

and exchange information at little or no cost per call."

An alert equipment salesman provided Princess telephones in the display booth so that both the private lines and the telephone company's new type telephone set were publicized.

A businessman in the wholesale plywood business was having trouble collecting delinquent accounts until he put an LDM salesman's recommendations to work. "How To" brochures and a little experience helped to train a girl in his office to call the delinquent accounts and ask for a payment date.

"It's terrific!" he said. "You can't throw a telephone call in the wastebasket, and it's hard to say 'No' to a girl asking for a payment."

Last Christmas season, LDM salesmen showed retailers how to offer a free telephone call anywhere in the world to customers making major purchases. A radio station liked the idea and offered it to one of its sponsors.

Now, if your name is drawn, an insurance company will pay for a free, world-wide telephone call.

A new and used car dealer also liked the idea and will pay for your call if you supply a prospect's name and a car is sold within 30 days. Car salesmen also use flip charts to prompt the right answers as they telephone local and long distance to find new buyers.

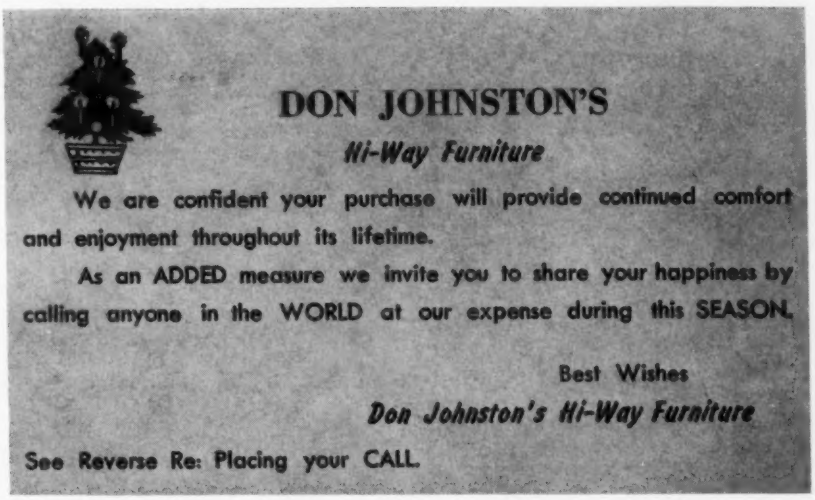
Companies with large sales forces are often interested in training material that will help their agents to make more contacts and do less travelling per day. One LDM salesman provided a company with training material in a "Phonepower" folder, along with a credit card for each salesman. The company emphasized the training to its salesmen and launched a Phonepower sales month, with a personal, broadcast telephone call to all of the sales staff across the country.

Revenue Estimation

Promoting long distance usage is, as stated before, actually promoting an intangible. Since no contact or regular payment is arranged, the salesman can only gauge his success by his prospect's enthusiasm and sincerity.

Generally speaking, when a prospect indicates his approval and agrees to put the recommendations into effect, the LDM salesman can count a sale. The amount of the sale is estimated after asking questions that indicate the distance, length and number of calls the customer expects to receive or make. Experience with similar working applications, and the amount of long distance presently being used, also figure largely in the estimation.

DETACH AND RETAIN THIS PORTION
One of these choices may be selected for your call:
(A) One 10 minute call within Ontario and Quebec.
(B) One 5 minute call anywhere in Continental North America.
(C) One 3 minute call to any point Overseas.
Call L-O-N-G DISTANCE . . . FREE!
LOVED ONES OVERSEAS !
FRIENDS ANYWHERE !
A FORBES Salesman will notify you if a sale has been made. You may then make the call from your own home at your convenience. When you have been billed for the call, bring your stub receipt along with your long distance statement enclosed with your telephone account.
FORBES MOTORS will be pleased to reimburse you for any call made within the allotted time stated in choices A, B or C.
THIS FREE OFFER GOOD ON THE SALE OF NEW PONTIAC, BUICK OR VAUXHALL, OR ANY GOODWILL USED CAR VALUED AT $1,000 OR OVER
DATED 19
Call SH 2-4463 or Mail This Card to Forbes Motors, Kitchener


DON JOHNSTON'S
Hi-Way Furniture
We are confident your purchase will provide continued comfort and enjoyment throughout its lifetime.
As an ADDED measure we invite you to share your happiness by calling anyone in the WORLD at our expense during this SEASON.
Best Wishes
Don Johnston's Hi-Way Furniture
See Reverse Re: Placing your CALL.

Merchants, car dealers, radio and television stations can use long distance calls (or colored telephone sets) as gifts and premiums. The tabbed card offered by the automobile dealer, and the seasonal invitation of the furniture retailer are both examples of employing the LDM salesman's recommendation to secure more customer inquiries and orders.

About four months later, the LDM salesman, or a regular substantiator, might revisit the businessman and check on the progress of the recommendation. At this time, some further help might be needed; the plan might be expanded and the original estimation lowered or increased. Regular spot checks by substantiators help the LDM salesman to determine whether he is estimating too high or low. The estimation is entered on a work report, totaled and compared with a monthly quota.

This estimated revenue cannot be compared with contracted or fixed payment revenue. It is more of a measurement of the salesman's effectiveness. Probably, the best indication of the results of a long distance promotion program can be seen in a study of the long distance revenues listed in the company's annual reports. Perhaps, this is not the best way to gauge the effectiveness of a salesman's visit, but it is the best known way at present.

The telephone can be economically and profitably used by businessmen; but it is up to the telephone companies to show their customers its many applications.

Fortuitous Climate

I have yet to find the man, however exalted his station, who did not do better work and put forth greater effort under a spirit of approval than under a spirit of criticism." — CHARLES SCHWAB.

Envy Unmasked

Envy's memory is nothing but a row of hooks to hang up grudges on. Some people's sensibility is a mere bundle of aversions; and you hear them display and parade it, not in recounting the things they are attached to, but in telling you how many things and persons "they cannot bear."—JOHN FOSTER.

The Plant Man's NOTEBOOK

By RAY BLAIN, Technical Editorial Director

TELEPHONE WORKERS are an honest lot, and are generally trusted by everyone. This is as it should be, of course, but it could be used by crooks to take advantage of an unsuspecting public. In fact, it is surprising that crooks do not take advantage of this situation more often than they do.

Almost any man can drive up to any residence in any town, walk up to the door with a packet of tools on his belt and a coil of wire on his shoulder, and gain admission without question. Very few ever ask to see an identification to prove that he is an employe of the telephone company. He could even be driving a telephone installation truck since old trucks of this type are frequently sold to the highest bidder by operating telephone companies.

If a crook used this means to enter a residence, he could case the place and come back later and rob it, or kidnap a child. Or he could steal valuable objects while on the job, faking telephone repairs. It is understood that wire tappers have used this method in some of our larger cities to gain entrance and install equipment so that telephone conversations can be picked up later.

Even though the possibility exists, it is apparent that very few crooks have made use of this method to date. If such a danger ever develops, perhaps operating companies will insist that their customers request that the telephone repairman show his credentials before entering their homes.

•

For years, the airport authorities in London have been attempting to scare the sea gulls away with all sorts of noises. None of the noises had any effect, until they called upon Elvis Presley. When a tape recording of his singing (perhaps "Hound Dog")—is played over a public address system, the gulls take off and do not return for 24 hours.

It appears that Elvis really sends them.

•

The USAF Airborne Communications Center, nicknamed "Talking Bird," has just completed a five-month round-the-world test and evaluation program. This flying command post/communications center visited Latin America, Africa, the Near East, and the Far East.

The communication facilities include single sideband radio, a telephone switchboard, portable radio systems for use on remote airfields, and a complete command post with working and living space for eight people, all mounted in a C-97E test aircraft.

While airborne, and at various stops around the world, the Talking Bird tested direct voice and teletypewriter contact with the Air Force Command Post in the Pentagon and with other Air Force headquarters throughout the world.

•

This year, The General Telephone Co. of Ohio plans to convert 15 exchanges to seven-digit all-number calling. A total of over 14,400 telephones are included in this "ANC" switchover.

•

The writer enjoyed a visit recently in Washington, D. C., with Charles A. Hayne, sales manager, special projects, for International Telephone & Telegraph Corp.

Mr. Hayne explained to us the operation of his company's STRAD electronic data and telegraph switching system, which is the first of its kind in actual operation in the world.

The STRAD (Signal Transmission, Reception and Distribution) system employs completely transistorized circuits effecting an extremely fast switching speed of 50,000 bits per second. Its modern electronic design insures maximum reliability of operation.

Using a magnetic drum for "store and forward" processing of message and data traffic, STRAD provides far more efficient use of expensive external channels than is possible with circuit or line switching. It is also claimed that this system has demonstrated the ability to handle large volumes of telegraph and data traffic with a degree of high-speed switching flexibility and reliability of performance far beyond the capabilities of electromechanical paper-tape switching systems.

•

Most of us have heard of the Bell System's test-site of its first electronic central office (ECO) at Morris, Ill.

On Nov. 17, 1960, 50 subscribers of Illinois Bell, the first of 300 who will be participating in the customer trial, were given this service.

The electronic central office provides a new and extensive range of subscriber services. Through the use of tiny gas tubes, memory systems, thousands of transistors and other solid state devices, which operate in millionths of a second, this system permits the trial users to:

Use home extension telephones as intercoms, simply by dialing two digits.
Reach frequently called numbers by dialing only two digits instead of seven.
Have incoming calls routed to another telephone when the original called line is busy.
Dial a code which causes all subsequent incoming calls to be transferred automatically to any other number (for example, to a friend's home if you plan to go there for the evening).

These are some of the special fea-

tures now in use on the electronic central office. Other new services, expected to be introduced after the trial has progressed, will permit customers to:

Call a third person into an existing telephone conversation.
Obtain an immediate connection to a busy line as soon as the line becomes available.

Numerous facts will be learned from this trial installation. For one thing, it will indicate how the electronic central office performs in service. In addition, it will provide an insight into which of the new service features telephone users prefer. Engineers are presently at work investigating means of providing some of these special features on present switching systems, should they prove popular.

This test will provide an excellent opportunity to study the kind of activity, and the number of people required to operate and maintain this new type of exchange. During the trial period, the Morris system will be operated jointly by the Illinois Bell Telephone Co. and the Bell Telephone Laboratories.

The first production model of the electronic central office is scheduled to be ready for operation by mid-1965. From then on, electronic switching will be gradually introduced into the Bell System, as required to meet the needs of telephone growth.

•

The Michigan Bell Telephone Co. reports that during the '60s it expects to completely eliminate manual and four-party service and work toward providing DDD and ANC for all of its customers.

Local areas will also be extended to serve the broadening interests of growing communities. By 1970, nearly all exchanges will have toll-free dialing privileges to at least one other nearby exchange. Even now, customers in nine out of ten Michigan Bell exchanges can dial one, or more adjacent areas without extra charge.

•

Cross Talk

Knowing when to say nothing indicates a fine command of the language.

•

Some minds are like concrete—thoroughly mixed and permanently set.

•

It is claimed that there are approximately 3,710 different languages, living and dead, which are, or were known to be, in use in some part of the world.

Plant Man's QUIZ

By RAY BLAIN, Technical Editorial Director

Q. We'd like to know how a video pair is provided in a composite communication cable?

A. In one cable of this type, the basic video pair consists of two conductors of 16-gauge solid, annealed, uncoated copper wire insulated with foam polyethylene. A polyethylene helically applied core tape, used with reinforced polyethylene fillers, provides a round core. A longitudinally applied copper tape and helically applied copper tape provide 100 per cent coverage.

An inner jacket is placed over this construction. Toll or exchange pairs are then cabled over the video cable, and non-hygroscopic core tape, longitudinally corrugated copper shield, and high-molecular polyethylene jacket make up the complete cable.

•

Q. What precautions are necessary when a paper-insulated lead-covered cable is spliced to plastic-insulated and jacketed cable?

A. When these different types of cables are spliced together, it is necessary to install a pressure plug so that moisture which may be in the plastic cable will not travel into the paper insulation.

This can be accomplished best by the use of a special cable stub that may be procured for this purpose. This stub is a 26-pair, 24-gauge lead-sheathed polyvinyl chloride-insulated color-coded length of cable.

One end of this stub has about 16 inches of sheath removed with the conductor ends cleared. A pressure plug, with metal cap, is factory-installed at the end of the lead sheath. The cap is soldered to the cable sheath.

These stubs are primarily designed for use in placing a ready-access cable terminal on paper or pulp-insulated cable.

•

Q. Can you furnish any information on a preparation that can be carried in the first aid kit for the treatment of burns which may be suffered on outside construction?

A. There is now available, in a pocket-sized spray container, an "After Burn Treatment" which can be used on the job. This treatment not only functions as an antiseptic, but also instantly soothes pain caused by severe burns and scalds.

The most important factors that have caused quick acceptance of this treatment are its complete non-toxicity, the fact that it can be used on any part of the body, and that it in no way impedes medical treatment in a hospital or dispensary.

•

Q. Can you furnish information on a device that can be used to clean the air of impurities in a dial equipment room?

A. A device known as the "Dustsorb" is now available for this purpose. It is claimed that by installing this device in your dial equipment switching room, you will eliminate one of the most common causes of trouble in this type of equipment. It is further claimed that the dust, fine floating dirt, lint, and even tobacco fumes, that are ever present in ordinary air, are entirely filtered out by 5-ply fibre filters in this apparatus. In each pass through the plenum chamber, 94 per cent of the impurities is removed.

The secret claimed for the amazing efficiency of this device is the filter which is serrated for a 7-to-1 ratio, giving it more than 28 square feet of filtering surface. Thus, the heavy-duty, non-overloading fan is able to draw a large volume of air through the machine, despite the resistance of the filter.

This machine is equipped with an automatic time switch so that the operation may be controlled to meet all conditions. In small rooms, the machine need be operated but a few minutes each hour. For larger rooms, the clock is set for longer operating periods.

Courts and Commissions

General of Mich. Asks Raise To Offset Earnings Decline

An application filed with the Michigan Public Service Commission on Mar. 6 by General Telephone Co. of Michigan, Muskegon, seeks approval to increase company revenue by approximately 4 million dollars annually.

Company president T. A. Saunders stated, "Since 1956, over 70 million dollars have been expended to improve and expand customer service facilities. Revenue from this increased expenditure has not been sufficient to maintain an adequate return to our investors." He noted that company investment in telephone plant had more than doubled in five years, showing an increase of 123.45 per cent.

Continuing, Mr. Saunders said, "Charges for today's service were established on costs based as far back as 1951, while those costs over which we have no direct control, such as taxes, wages, material and depreciation, have all risen steadily since that time. The costs of operating our business, over which we *do* have control, have actually decreased slightly in the last five years."

Documenting General of Michigan's service improvement, the chief executive listed 49 exchange communities changed to dial operation, pushing percentage up from 51 to 86 per cent. Customers have increased by 75,112, an increase of 48 per cent; while Direct Distance Dialing (DDD) and Extended Area Service (EAS) have been initiated in many areas.

"Operating efficiency and economies have been successful in delaying this move for revenue increases for many months. It is now necessary to reverse the downward trend of earnings by bolstered revenue," Mr. Saunders said.

Assuming approval of the entire amount of revenue increase sought, after federal taxes, the company would retain approximately $1,920,000 annually.

"We hope to continue to improve and expand our service. In fact, some 34 million dollars will be required in the years 1961-62 to meet planned construction. We feel it is in the best interest of our customers, employes, and shareowners that we have approval of the requested increase," Mr. Saunders concluded.

Approve 2 Ill. Sales; OK to Drop Bell Report Charges

The Illinois Commerce Commission on Mar. 10 authorized Blandinsville Switchboard Co. to sell its system to the McDonough Telephone Cooperative, Inc., Colchester (TELEPHONY, Dec. 3, 1960).

•

The commission on the same date announced it was authorizing Fairview Central Telephone Co. to sell all of its property to the Mid Century Telephone Cooperative, Inc., Canton (TELEPHONY, Feb. 18).

•

In a further action on Mar. 3, the commission approved an Illinois Bell Telephone Co. tariff eliminating the collection of report charges on intrastate person-to-person and collect long distance calls. It is reported that this action will save subscribers approximately $280,000 annually.

The commission had earlier asked Illinois Bell to study the possibility of eliminating the report charges. The reduction will be effective Apr. 3.

Approve Rules For Line Location on Ia. Highways

The Iowa Highway Commission has approved rules under which public and private utility lines will be permitted on primary highway rights of way. The new rules apply to telephone and telegraph lines, as well as to other utilities.

The rules provide that no poles can be located on shoulders or median strips. Pole-carrying wires can be placed in the edge of the right-of-way. Underground lines are prohibited in the shoulders or in areas where signs might be posted.

Election Change in Neb.

The Nebraska legislature on Mar. 3 advanced to general file a bill, LB 299, which would submit to voters next year a proposed constitutional amendment, under which railway commissioners would be elected by districts, rather than from the state at large. The legislation was proposed by the interim study committee of the legislative council.

OK Toll Call Fraud, Relocation Bills in Ind.

The Indiana legislature has approved, and sent to the governor, a bill which makes it a criminal offense to use any prearranged scheme or code to send "free" messages by long distance telephone (TELEPHONY, Feb. 18). The measure sets penalties at a year's imprisonment and a $1,000 fine.

•

Also in Indiana, the legislature has passed, and sent to the governor, a bill requiring the Indiana Highway Department to reimburse utilities for relocation of their facilities when necessitated by state highway construction.

Ask to Effect Raise in Tex. While Appeal Is Pending

The Fourth Texas Court of Civil Appeals in San Antonio on Feb. 23 began hearings on the petition of the General Telephone Co. of the Southwest to put a requested rate increase into effect in Weslaco while the rate proceeding is being appealed (TELEPHONY, Jan. 14).

The city of Weslaco is appealing a Dec. 22, 1960 decision of Judge W. R. Blalock of the 93rd Texas District Court which granted the company a permanent injunction against the city.

The litigation began on June 16, 1960 when the city denied the General company's rate raise request and lowered the rates for intrastate calls originating in Weslaco. The company petitioned for an injunction prohibiting the city from carrying out this ordinance.

Judge Blalock's decision came after he had first granted a temporary injunction, ruling that the city can set local rates but cannot regulate intrastate calls. However, the court reporter's record of testimony in this injunc-

tion hearing was reportedly stolen, and since neither of the parties could agree on stipulating testimony for the missing record, both asked for a permanent ruling. Judge Blalock's ruling, granting the permanent injunction, supported the telephone company's position.

FCC, NASA Tell Civil Space Communications Activities

The Federal Communications Commission on Feb. 28 announced its then chairman, Frederick W. Ford, and Hugh L. Dryden, Deputy Director of the National Aeronautics & Space Administration, have signed the following "Memorandum of Understanding" between those agencies for delineating and coordinating their respective responsibilities in the field of civil communications space activities:

"The purpose of this memorandum is to provide a basis for coordinating activities of the National Aeronautics & Space Administration (NASA) and the Federal Communications Commission in the application of space technology to civil communications in order that their respective statutory responsibilities may be carried out in the national interest. It is mutually recognized that future Presidential or Congressional actions may necessitate some modification of this memorandum.

"Following full and complete discussions of the present situation and future objectives, certain conditions of fact and policy guidelines were agreed upon. Both NASA and the FCC recognize as conditions of fact—

"(1) That the present state of the technology of communication satellites strongly suggests the feasibility of utilizing such satellites to expand and improve existing facilities for world-wide communications services.

"(2) That a substantial amount of further research and development is necessary to demonstrate both the technical and economic feasibility of utilizing communication satellites on a commercial basis.

"(3) That in accordance with traditional communications policy in this country, overseas public communications are provided by private enterprise, subject to government regulation, and that at the present time overseas voice communications are provided primarily by a single company and overseas record communications are provided by several companies.

"(4) That the FCC and NASA are concerned with the nation's total communications capability from the points of view, respectively, of civil communications policy and the commercial utilization of space technology; and that existing common carriers and others are interested in participating in the development of space telecommunications technology to expand and improve world-wide channels of communication through private expenditures; and

"(5) That the congestion and technical limitations of the radio spectrum presently useful for world-wide communications are such that without communication satellite technology the spectrum probably cannot support the very substantial increases in capacity necessary to satisfy new services, such as transoceanic TV and wide-band data transmission, or to satisfy the anticipated expansion of ordinary types of services.

"On the basis of the foregoing observations, both NASA and the FCC affirm the following propositions as guidelines for the coordinated conduct of their respective activities:

"(1) The earliest practicable realization of a commercially operable communication satellite system is a national objective.

"(2) The attainment of this urgent national objective in the field of communications may be accomplished through concerted action by existing agencies of government and private enterprise.

"(3) The statutory authority of NASA and the FCC appears adequate to enable each agency to proceed expeditiously with the research and development activities necessary to achieve a commercially operable communication satellite system.

"Special problems which may arise in connection with the regulation of a commercially operable system are being explored by both agencies, and may result in legislative recommendations at a later date.

"(4) In accordance with the traditional policy of conducting international communications services through private enterprise subject to governmental regulation, private enterprise should be encouraged to undertake development and utilization of satellite systems for public communication services.

"(5) Both NASA and the FCC will conduct their respective activities with a full exchange of information so as to accelerate necessary research and development and to coordinate governmental actions necessary to attain the national objective.

"(6) NASA, in appropriate cooperation with other government agencies, will continue to direct its activities in this field toward the advancement of space technology and its application to civil communications.

"(7) The FCC, in appropriate cooperation with other government agencies, will continue to direct its activities in this field toward the development of communications policy and the implementation and utilization of space telecommunications technology through the licensing and regulation of United States common carriers. In this connection, the FCC will take into account the total government needs for communication services where such needs normally are provided by privately owned facilities.

"(8) Both NASA and the FCC, consistent with the policies of the Department of State, will facilitate international cooperative activities in the field of space telecommunications within the framework of this nation's international obligations and aims.

"(9) Existing inter-agency organizations and procedures for coordination will be employed with respect to the allocation and assignment of frequencies necessary to support both the research and development and the operational phases of a civil communication satellite system."

Ask One-Year Retention Period For Toll Tickets

The United States Independent Telephone Association, in its Mar. 1 member letter, reported that it had received a request from the U. S. Attorney General's office asking that Independent telephone companies retain toll tickets and marked-sense cards for a period of one year, rather than the present six-month period.

The letter read as follows:

"The Attorney General has requested that toll tickets and marked-sense cards be retained for a period of one year, rather than the six months period presently prescribed by Part 42 of the Federal Communications Commission's Rules and Regulations. This action is desirable for improved law enforcement.

"Frequently the information gained from toll tickets has enabled agencies of the government to mount successful prosecutions. On the other hand, the present period of retention has at times stymied investigators in their efforts to reconstruct the activities of people suspected of criminal activities.

"The cooperation of each of your members would be greatly appreciated and would be of assistance to the entire law-abiding community."

FCC Authorizes Laying of Direct U. S.-G. B. Cable

The Federal Communication Commission has authorized the American Telephone & Telegraph Co. to start laying the first transatlantic telephone cable to connect the U. S. and Great Britain directly.

The AT&T already has two transatlantic cables, one to Great Britain, and one to France, but both begin at Newfoundland and are connected to U. S. telephone circuits by Canadian land lines.

The new cable will originate on the New Jersey coast between Atlantic City and Manahawkin and will extend to England near Widemouth Bay, it is announced. In length, the cable will be about 3,500 nautical miles. Probable date of completion is 1963.

Ownership will be vested jointly in AT&T and the British Post Office, which is responsible for British telephone service. It is reported AT&T's share of the costs will be about 28 million dollars.

According to FCC announcement, the cable is described as of a new design

(Continued on page 38)

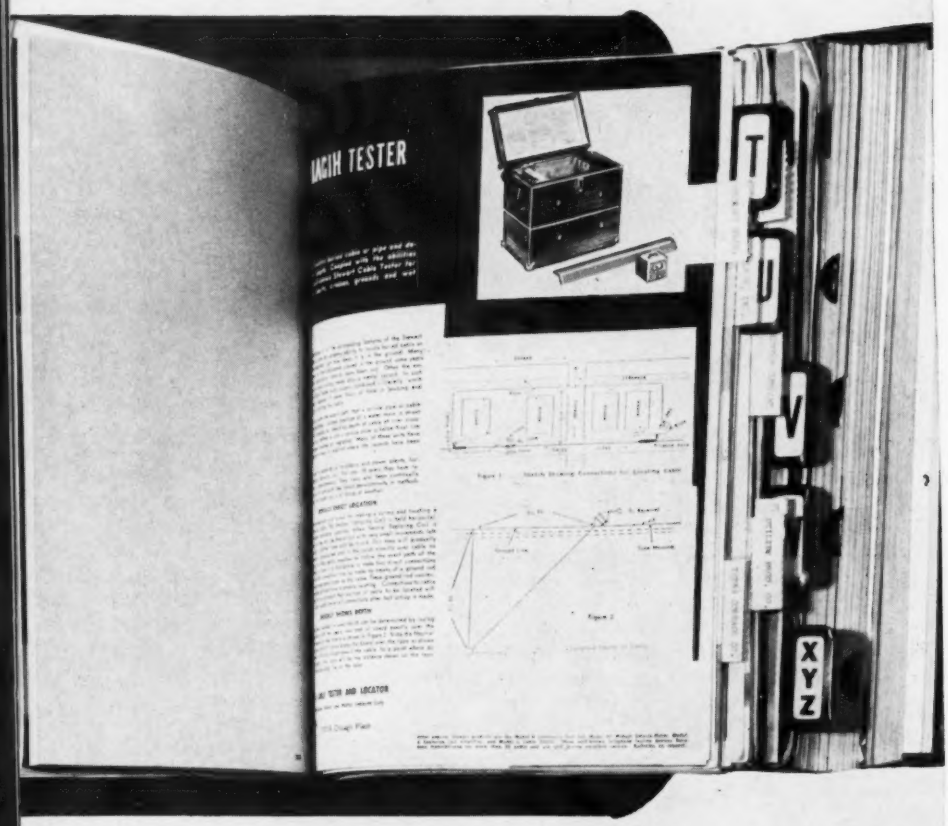
Your **ONE SUPPLY SOURCE** known

by MANY TRADE NAMES

You are looking at the king-sized product catalog in the Lindsay Telephone Supply sales offices. It contains over 2000 items including WIRE—CABLE—ACCESSORIES—GALVANIZED STRAND—POLE LINE HARDWARE—TELEPHONE CORDS—you name it, we've got it.

We've got product knowledge too . . . our sales personnel "talks your language". No confusion when ordering . . . you get the product you want . . . the product you need . . . in a hurry!

Add them all up . . . broad line—product knowledge—super service in a hurry—and, of great importance, adequate warehousing facilities.



Your Lindsay Telephone Supply Checklist

Here's a handy checklist to use when you order from Lindsay.

- ☐ Alpeth, Figure 8, R.D.W.
- ☐ Lead and Stalpeth Cable
- ☐ Access terminals and Blocks
- ☐ Load Coils, expandable
- ☐ Drop wire, Inside wire, Clamps
- ☐ Protectors, outside, inside
- ☐ Buried plant accessories
- ☐ Telephone Booths, Lighting
- ☐ Strand, Open Wire
- ☐ Strandlinks, Wire vises
- ☐ Dead ends, Tangent grips
- ☐ Staples, Tape, Sleeves, Hardware
- ☐ Batteries, Ringers, Tone Generators
- ☐ Repeaters, Main Frames
- ☐ Plugging Compound Kits
- ☐ Pliers, Shovels, Pouches

The above items are only part of the broad Lindsay Line. Send in this coupon for additional information on other Lindsay products that fit your requirements.

Please send me information on:

_____

Name_____

Title_____

Company_____

Address_____

City_____ Zone____ State____

The next time you order, SAVE TIME, SAVE CONFUSION

DIALINDSAY SERVICE

LINDSAY TELEPHONE SUPPLY COMPANY

CALL US COLLECT, PLEASE!

360 EAST HIGHLAND RD.
NORTHFIELD, OHIO
Telephone: IMPERIAL 7-7181

590 PIEDMONT AVE., N. E.
ATLANTA, GEORGIA
Telephone: TRINITY 5-7091

using a steel wire core, copper-wrapped and insulated with polyethylene that will not require the heavy "armoring" protection used on most deep-sea cables. It will also be equipped with "repeaters" or amplifiers of a new design, spaced about 22 miles apart.

The new direct U. S.-Britain cable will provide 128 voice-grade circuits, which means that this number of telephone calls can be carried, or transmitted simultaneously.

Western Union Asks Probe Of AT&T TELPAK Service

Western Union on Mar. 9 asked the Federal Communications Commission to investigate TELPAK, the Bell System's new service, under which large industrial and government users can rent broad "electronic communication highways" instead of paying for a number of private lines (TELEPHONY, Jan. 28).

Western Union said rates for the service, inaugurated on Feb. 16, are being "improperly and unlawfully calculated." It asked the FCC to determine whether "the purpose and effect of TELPAK is to create a monopoly through the stifling of competition in the leased wire field."

The Western Union petition to the FCC asks specifically:

"(1) To order the AT&T to stop furnishing the components of a broad band leased channel over a variety of routes.
"(2) To institute an immediate investigation to determine the reasonableness of the applicable rates and ascertain whether the effect of the tariff is to 'create a monopoly, thereby stifling all competition in the leased wire field.'
"(3) To require the telephone company to keep certain records."

Western Union, which now is prohibited from furnishing voice, or telephone service on its system, told the FCC it wants permission to provide voice service to its private wire customers.

SBT&T Asks to Set Rates For WATS in N. C.

The North Carolina Utilities Commission on Feb. 20 set a hearing in May on Southern Bell Telephone & Telegraph Co.'s proposal for Wide Area Telephone Service (WATS), which would allow subscribers to make an unlimited number of long distance calls within the state at a flat monthly rate of $500.

Southern Bell's proposal also includes another type of wide area service, which sets a maximum of 15 hours use a month at a $250 charge, with each additional hour costing $15.

Southern Bell states that at present it is contemplated such WATS calls could be made to telephones in all Bell exchanges, and in 146 exchanges of participating Independent companies in North Carolina.

The commission ordered a 90-day suspension of the proposals until a hearing is held, and a ruling made, stating that the proposals give "no indication whether or not the requested rates are reasonable."

OK N. Y. Telephone Metro Service, EAS with 2 Others

The New York Public Service Commission on Mar. 11 authorized New York Telephone Co. to extend metropolitan service in the Syracuse area to ten more outlying exchanges, beginning Mar. 19. The plan was given strong endorsement by all witnesses at recent public hearings (TELEPHONY, Feb. 11).

The commission's action was taken, however, only after the company had given assurance that the plan will be further extended no later than Apr. 1, 1962, so as to increase the toll-free calling areas of the exchanges now being brought into the extended service (EAS) area.

In 1950, New York Telephone Co. initiated extended area service between Syracuse and its exchanges at Baldwinsville, Camillus, Cicero, Fayetteville, LaFayette, Liverpool and Minoa and the Manlius exchange of Midstate Telephone Co. and the Marcellus exchange of the Finger Lakes Telephone Corp. These are now classified as "first-tier" exchanges, since each is adjacent to the Syracuse core area. They have toll-free calling privileges to Syracuse and to each other.

Under the proposal approved on Mar. 11, ten "second-tier" exchanges—those which are adjacent to the "first-tier" group—will be brought into the plan. These are the New York Telephone exchanges at Amber, Bridgeport, Chittenango, Cleveland, Constantia, Fabius, Jordan, Skaneateles, and Tully; and the Finger Lakes Telephone Corp.'s exchange at Rose Hill.

Beginning Mar. 19, Syracuse subscribers will be able to make unlimited toll-free calls to all of the 19 first and second-tier exchanges. Similarly, subscribers of the "first-tier" exchanges will have their toll-free calling privileges extended to include nearby "second-tier" exchanges. Subscribers of each of the "second-tier" group will be able to make toll-free calls to the Syracuse core area and to certain nearby first and second-tier exchanges.

In an opinion, Commissioner Ralph A. Lehr, who held hearings on the case, declares:

"The company's modified plan will apparently meet public demand for improved telephone service in the Syracuse Metropolitan Area. The entire plan cannot be made effective immediately. However, the company should be permitted to progress (with) it as rapidly as possible."

Commissioner Lehr states that evidence submitted at the hearings showed the company had spent about 3 million dollars to install equipment necessary for the introduction of the plan.

He also said that once the enlarged Syracuse metropolitan area service plan is effected, subscribers will have potential local calling areas of more than 200,000 telephones. In conformity with the company's statewide rate structure, monthly charges to all customers will necessarily be increased. The company estimates that its net annual revenue increase will approximate $703,000. This represents a gross increase of $1,052,000 in basic rates, offset in part by the loss of $349,000 now derived annually from toll charges to be eliminated.

Rate adjustments corresponding to those being effected by New York Telephone Co. are to be made also for subscribers of the Rose Hill and Marcellus exchanges of Finger Lakes Telephone Corp. and of the Manlius exchange of Midstate Telephone Co., Inc.

SW States Allowed 6.125% Return in Oklahoma

The Southwestern States Telephone Co., Brownwood, Tex. on Mar. 8 was granted a $134,049 rate increase by the Oklahoma Corporation Commission, giving the company a 6.125 per cent rate of return on Oklahoma operations, which the commission said was a "fair, just and reasonable allowance" (TELEPHONY, Sept. 3).

The company, in its petition, had asked for an increase of $239,042.89 to give it net earnings of $386,805.44 or a 7 per cent return. Approved rates will give it net earnings of $337,118.

The Southwestern States company, which serves 32 cities and towns in Oklahoma, had reported net earnings of $274,549.64, for the fiscal year ended June 30, 1960, giving it a return of 4.98 per cent on a rate base of $5,516,097.64.

The Oklahoma commission determined the company's rate base to be $5,503,860. The rate base was figured on book cost of plant, less depreciation of $5,371,178, plus an allowance for materials and supplies and working capital.

Operating expenses; taxes, except income, and depreciation were determined to be $1,273,718 annually. Federal and state income taxes were computed at $231,417.

SWITCH
TO AIRTRONICS
PACKAGED PROGRAM EQUALIZER

AIRTRONICS PACKAGED PROGRAM EQUALIZERS, manufactured in single-unit and twin-unit models, are available in portable, wall-mount or standard 19" or 23" rack-mount arrangement. Test and monitor jacks can be provided on all models. Special models also available on request.

A LINE OF PRECISION PRODUCTS TO MEET TELEPHONY'S NEEDS

Airtronics Packaged Program Equalizer is just one of many products which are earning for the Company a unique reputation as "designers and manufacturers of telephony's finest test and maintenance equipment." The complete Airtronics line — which also includes Portable Test Hybrids, Far-End Terminating Sets, Artificial Line and Training Sets, Switch-Gain Amplifiers — can save your Company many dollars yearly. New Airtronics products, soon to be announced, are being developed to help the industry provide still finer, faster, more economical telephone communications.

SAVE UP TO 75% IN MAN-HOUR COSTS

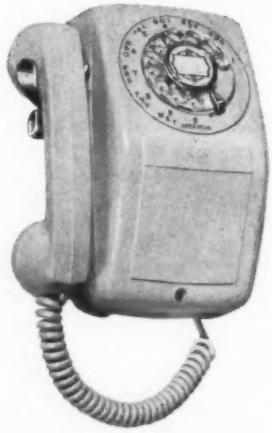
Airtronics completely self-contained Program Equalizer literally *switches* you from time-consuming, costly methods to big dollar savings . . . lines up telephone circuits to carry high quality radio programs — in minutes instead of hours! Designed for operating on standard program-loaded or non-loaded communications cables, this unusually flexible Airtronics unit features pre-tuned circuits in 1½ KC steps from 5 KC to 25 KC. A few simple switch adjustments now do work formerly handled by 2 skilled technicians: control insertion loss of the LC network, select values of L and C, regulate line-to-drop ratios, control the circuit location of the RLC network, etc. Use Airtronics Packaged Program Equalizer with sweep generator techniques . . . save enough, in just three or four applications, to cover its low price. Write for complete details and prices today!

another product FIRST from

AIRTRONICS INTERNATIONAL CORPORATION

P.O. Box 8576, Fort Lauderdale, Florida (6900 West Road 84)

Different people want different phones



TYPE 90 WALL PHONE
A space-saver with narrow profile design. Special-angle dial is easy to use. Side-mounted handset can't be brushed off hook. Simple installation and maintenance. Choice of 10 colors.

AE makes a phone for every customer need

STARLITE* PHONE
The answer to a modern homemaker's dream. This compact phone is half the size of a regular phone. Choice of six colors. Dial light can be turned from soft to bright or completely off, anytime.

Each person in your area has specific telephone needs. In his kitchen, the chef needs a phone that won't clutter his work area. The housewife, however, wants a phone that adds new color and drama to her home. You can sell both...

To meet the needs of different customers, you must provide many types of phones—standard *and* special. Why? Because it's profitable! The customer who wants a special phone pays extra for the extra service.

Any new customers in your area? Any old ones with new telephone needs? If so, show them the AE phone best suited to their particular needs. Contact your AE representative. He'll be glad to give you full details on our complete line of telephone services and related instruments. Only AE offers 15 different phones to meet different customer needs.

AUTOMATIC ELECTRIC

Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

**STARLITE is a trademark of Automatic Electric Company*

$3,839,000 in REA Loans Approved for Expansion

SEVEN TELEPHONE LOANS approved by the Rural Electrification Administration and totaling $3,839,000 will aid in financing construction of plant and facilities in five states as follows:

Peoples Telephone Co., Collinsville, Ala.; $1,014,000; Mar. 1.

This loan, together with $250,000 of the company's own funds, will help enable the company to serve 2,620 new subscribers; construct a new commercial office and warehouse at Collinsville; provide for an increase in the proportion of private and semi-private lines; and install additional toll facilities in the Leesburg toll center.

REA loans to this borrower will assist it in bringing new and improved service to 5,659 subscribers. The system will consist of eight exchanges which now furnish dial service to approximately 3,025 subscribers.

•

Casey (Ia.) Mutual Telephone Co.; $254,000; Mar. 1.

This loan will help the Casey company to improve service for 474 subscribers and furnish initial service to 40 subscribers. This new borrower of REA funds, a commercial corporation, now provides magneto service to the existing subscribers. The borrower proposes to construct a new dial-commercial office building in Casey.

Collis J. Smith is president and Marvin J. Larson is manager of the Casey Mutual Telephone Co.

•

Mid-Missouri Telephone Co., Gilliam, Mo.; $151,000; Mar. 1.

With this loan, the company plans to improve service for 153 subscribers and furnish initial service to 80 subscribers. About 120 of the existing subscribers are now receiving magneto service from the Fortuna Telephone Exchange which the borrower proposes to acquire. In addition, the Mid-Missouri company plans to serve 33 subscribers located within the Fortuna service boundaries, but now receiving switching service from other adjacent companies.

A new dial central office is scheduled to replace the Fortuna central office.

Loans from the REA received by this borrower will help make possible new and improved service to 2,455 subscribers. The Mid-Missouri system will consist of eight exchanges, of which six now furnish dial service to approximately 1,820 subscribers.

•

Liberal (Mo.) Telephone Co.; $164,000; Mar. 1.

With this loan, the company will be helped to improve service for 191 subscribers and furnish initial service to 77 subscribers.

The borrower also proposes to acquire the Mindenmines Telephone Co. which now furnishes magneto service to 125 of the subscribers who will receive improved service under this loan.

The remaining subscribers now receive switching service from the Nashville Mutual Telephone Co. They plan to dismantle their lines and become regular subscribers of the borrower as soon as dial service is available. A new dial central office will replace the present switchboard at Mindenmines.

REA loans to the Liberal company will assist it to make available new and improved service to 869 subscribers. The system will consist of two exchanges. The Liberal exchange now furnishes dial service to approximately 500 subscribers.

•

Taylor Telephone Cooperative, Merkel, Tex.; $325,000; Mar. 1.

The borrower states that these funds will be used primarily to complete construction of the authorized system.

REA loans to Taylor Cooperative will help enable it to furnish new and improved service to 2,302 subscribers. The system will consist of 13 exchanges, of which 12 now furnish dial service to approximately 1,760 subscribers.

Correction

In the Mar. 11 issue of TELEPHONY, on page 48, the name of the fifth borrower in the report of Rural Electrification Administration loans was inadvertently omitted. The company to whom a $500,000 loan was made is the New State Telephone Co., Roosevelt, Okla. This financing was approved on Feb. 24.

Valley View (Tex.) Telephone Co.; $40,000; Mar. 1.

This loan will assist Valley View to finance construction to serve 49 new subscribers through the Valley View exchange.

The two REA loans to this company will help enable it to furnish new and improved service to 360 subscribers. About 250 subscribers now receive dial service through the Valley View Exchange.

•

Farmers Telephone Cooperative, Kingstree, S. C.; $1,891,000; Mar. 1.

The Cooperative plans to use this loan to furnish initial service to 2,659 subscribers, complete the authorized system, including construction of the West Andrews exchange, and provide for an increase in the proportion of private and semi-private lines.

Loans to this borrower will help it to furnish new and improved service to 7,827 subscribers. The system will consist of 14 exchanges, of which 13 now furnish dial service to approximately 3,830 subscribers.

Obituary

SAMUEL M. THOMAS, 76, president of the Cazenovia (N. Y.) Telephone Corp., died in Syracuse on Mar. 5. He had entered the hospital some two weeks earlier for surgery.

Mr. Thomas was elected president of the Cazenovia Telephone Corp. in 1921, and had remained active in this capacity through the intervening years.

Continuously interested in the affairs of the New York Telephone Association, he was elected a director, representing the central district in 1951, and served until he resigned in 1953.

Very active and deeply interested in community affairs, he was a director of Cazenovia National Bank from 1928 until 1957.

Survivors are the wife, Mrs. Pearl D. Thomas of Cazenovia; a daughter, Mrs. Stephen Kezerian; and two granddaughters of Northford, Conn.

The State's Function

"When the state goes beyond its proper functions of maintaining law and order at home and providing protection against foreign aggression, and starts to assume the rôle of a universal provider and regulator, it never knows when to stop. One arrogation of power leads to another, and the planned economy quickly develops into the totalitarian state."—WILLIAM HENRY CHAMBERLIN, *author.*

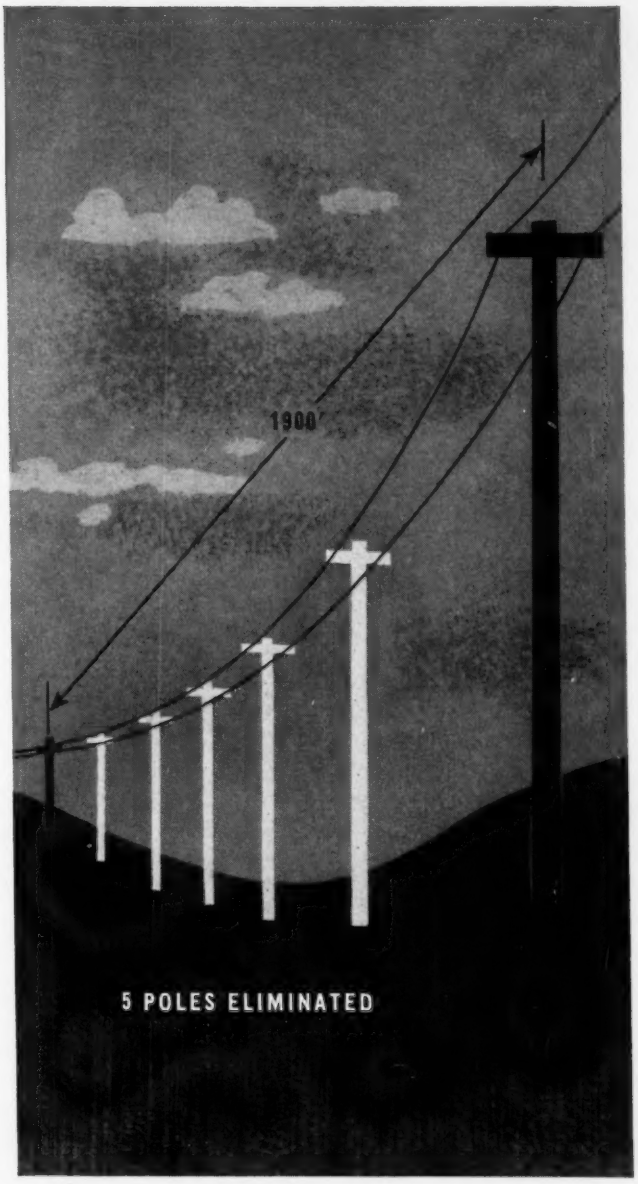
NS Special 080-25 COPPERPLY® makes 1900 ft. span

Now you can span distances up to 1900 ft., depending on terrain, with special-strength National-Standard COPPERPLY wire (copper plated steel conductor). You eliminate as many as five poles per span with this new concept in long-span aerial insulated wire plant.

MAINTENANCE SAGGING and damage resulting from ice loading is virtually eliminated, since COPPERPLY does not exceed 55% of its breaking strength when loaded and resting on the ground. And COPPERPLY will meet NESC ground clearance requirements when unloaded.

UNINTERRUPTED SERVICE—under severe testing conditions, Special 080-25 COPPERPLY (25% conductivity, 4 mils of copper coating) was buried in three feet of snow for over three months without any interruption in line service. In addition, long-span installation with insulated COPPERPLY cuts installation costs, prevents the problem of mid-span hits, eliminates leaks to ground and reduces corrosion. Tree trimming and maintenance costs are appreciably reduced.

To get the complete story on Special 080-25 COPPERPLY and other standard sizes, contact National-Standard Company, Niles, Michigan. C-61-1



Special 080-25 COPPERPLY is designed to rest on the ground at 55% of breaking strength, allows great savings in pole installation.

NS NATIONAL-STANDARD COMPANY

NATIONAL-STANDARD COMPANY
Niles, Michigan

Form 8 New Credit Unions In Communications Industry

The number of credit unions serving the telephone and telegraph industry in the United States was increased to 334 during 1960, with the formation of eight new ones, according to an announcement by the Credit Union National Association.

Newly organized credit unions included the following:

S. E. Gentelco Federal Credit Union by employes of the General Telephone Co. of the Southeast, Durham, N. C.

Southwestern States Federal Credit Union, The Southwestern States Telephone Co., Brownwood, Tex.

Elizabeth (N. J.) Plant Federal Credit Union, New Jersey Bell Telephone Co.

P.E.T. Federal Credit Union, The Chesapeake & Potomac Telephone Co. of West Virginia, Parkersburg, W. Va.

GTC Fort Wayne (Ind.) Federal Credit Union, General Telephone Co. of Indiana, Inc.

Northern New York Telco Employes Federal Credit Union, New York Telephone Co., Potsdam.

Wheleco Federal Credit Union, Chesapeake & Potomac Telephone Co. of West Virginia, Wheeling, W. Va.

MRT Pacific Federal Credit Union, Mackay Radio & Telegraph Co., San Francisco, Cal.

Credit unions are nonprofit organizations which promote thrift and provide low-cost loans for valid reasons.

They are formed by people with a common bond, such as those working for the same employer; and they are owned and operated entirely by the members.

The members elect their own officers and set the policies within the limits of their government charter. Any earnings above expenses are returned to the members.

More than 1,000 credit unions were formed in 1960, bringing the total in this country to 20,456, the national association (CUNA) reports.

Merger of Central Tel. and Southern Nevada Proposed

The boards of directors of Southern Nevada Telephone Co. of Las Vegas, Nev., and Central Telephone Co. have agreed to recommend to the shareholders of the respective companies a combination of the two companies. The proposed combination is subject to certain contingencies, including favorable tax rulings by the Internal Revenue Service, authorization by regulatory authorities having jurisdiction, and approval by the shareholders of both companies.

Under the terms of the proposed combination each share of Southern Nevada Telephone Co. common stock would represent 1.6 shares of common stock of the combined company. Each common share of Central Telephone Co. would represent one share of common stock of the combined company.

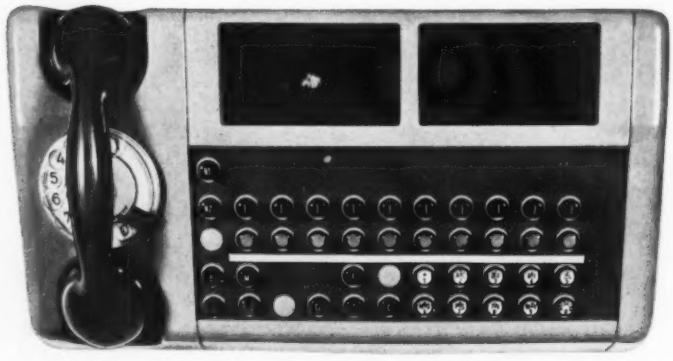
It is expected that initially, the annual dividend rate on common stock of the combined company would be 88 cents per share, which is the current rate on Central Telephone Co. common stock. On this basis, Southern Nevada Telephone Co. common stockholders would have an increase of about 17.3 per cent over the current yield from their investment.

Holders of preferred shares of Southern Nevada Telephone Co. would receive substantially identical preferred shares of the combined company, with conversion privileges of the two convertible series adjusted to provide 1.6 shares of common stock of the combined company for each common share of Southern Nevada Telephone Co. to which the convertible preferred shares are now entitled on conversions.

The properties of Southern Nevada Telephone Co. would be operated as the Southern Nevada Telephone Co. division of the combined company, with no changes contemplated in the operating

IN BRIEF...

ALL YOUR COMMERCIAL SUBSCRIBER NEEDS AND SPECIAL REQUIREMENTS PACKAGED IN A DESK TOP CABINET—NO LARGER THAN A BRIEF CASE...



TYPE 30 PABX
BY USI

Truly an automatic system that frees the PBX operator for other duties

USI CORP.

UNITED STATES INSTRUMENT CORPORATION
CHARLOTTESVILLE, VIRGINIA

organization or basic method of operation.

Gross plant account of Southern Nevada Telephone Co. was $23,014,226 at Dec. 31, 1960. Its 52,922 company-owned telephones at that date, serving Las Vegas and nearby territory, were 97.2 per cent dial automatic; and are expected to be 100 per cent automatic by the end of this year. Telephones in service showed a 16.3 per cent gain in 1960.

Operating revenues for the year ended Dec. 31, 1960, were $7,523,194. Net income for common stock was $1,002,340 or $2.14 per share on average shares. The current annual dividend rate on Southern Nevada Telephone Co. common stock is $1.20 per share.

Central Telephone Co. and its subsidiaries owned and operated 141 exchanges in six states, serving 278,254 company-owned telephones at Dec. 31, 1960. Consolidated gross plant account at Dec. 31, 1960, was $90,736,978 and consolidated operating revenues for the year then ended were $24,590,561. Consolidated earnings for Central Telephone common stock for 1960 were $2,576,276 or $1.67 per share on average shares.

Unfettered Minds Rare

Napoleon made this revealing comment from his exile on the island of St. Helena: *"Throughout my reign I looked in vain for the man who could rise above routine and think creatively."*

Life Is Action

"We protract the career of time by employment, we lengthen the duration of our lives by wise thoughts and useful actions. Life to him who wishes not to have lived in vain is thought and action."—ZIMMERMAN.

Crapo HTL-135

EVERYTHING YOU NEED IN A GOOD RURAL TELEPHONE WIRE

Ample Conductivity
Superior Strength
Dependable Life
Low Cost

When you or your engineers specify a telephone wire for rural lines you want to be sure that it will fulfill every practical requirement yet be economical to install and maintain. Crapo HTL-135 High-Tensile Line Wire was conceived and developed with that purpose in mind. Its voice transmission and ringing qualities are excellent for subscriber loops in typical rural systems. Its superior physical strength and its fatigue endurance make posible long-span, low-cost construction with an adequate margin of safety and a minimum of maintenance.

Comparative cost studies show that substantial savings can be realized by building rural lines with Crapo HTL-135. For dependable and economical performance, insist upon this reliable, time-proven conductor!

WRITE for Engineering Manual TM-59 containing Sag and Tension Data, Staking Tables and Guying Tables.

Crapo HTL-135
INDIANA STEEL & WIRE CO., INC. MUNCIE, INDIANA U.S.A.

INDIANA STEEL & WIRE CO., INC.
Muncie, Indiana

Vancouver Exchange Building Eliminates Cable Vault

Through the big windows that form the north wall of its equipment room the new "Castle" exchange of the British Columbia Telephone Co., Vancouver, provides a lesson to the public on the complexity of modern communication systems. The telephone man looking through these windows is equally struck by the fact that the exchange seems to have no main distributing frame.

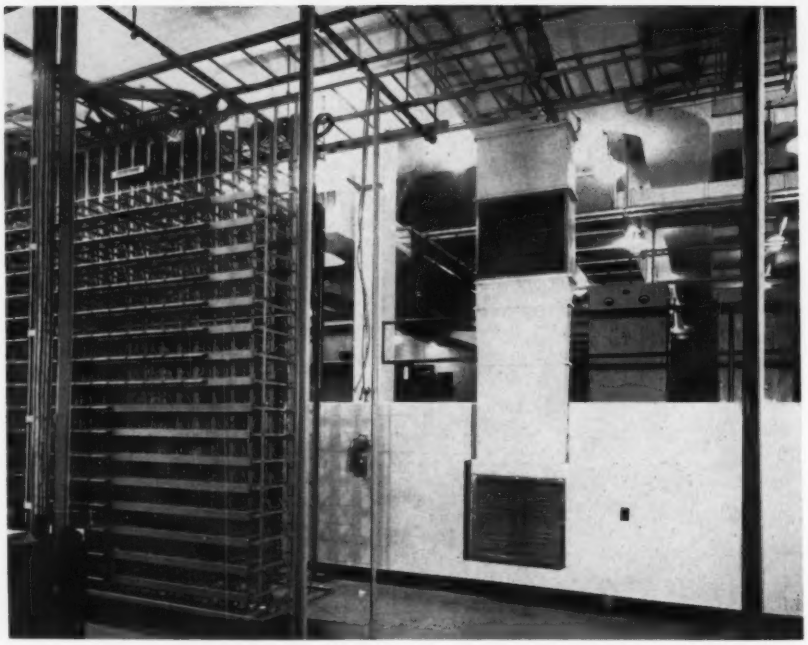
The designers of this new Vancouver exchange found that the size of the lot made it impossible to place the main distributing frame on the same floor as the equipment room in the usual arrangement, with the cable vault below the frame. They solved this problem by placing the frame below the equipment room, and eliminating the cable vault. Starting with this concept, they designed a building which is a strikingly handsome addition to the configuration of Vancouver's skyline.

Another serious problem of providing off-street parking was solved at the same time. In suburban areas, zoning requires one car space for every 1000 square feet of space. Building plans were approved on the understanding that the old office would be removed after the conversion to provide this parking. Floor levels were planned so that the equipment room can be expanded to double its present size, over this parking area.

The "Castle" exchange is the automatic counterpart of "Alma," the manual exchange which had served the area since 1924. Wire-center surveys proved that the new exchange would have to be located on this same site, in order to avoid excessive cost and rebuilding of outside plant. Also, it would have to house an estimated 9600 lines and 17,200 connector terminals of Strowger Automatic equipment, supplied by Automatic Electric (Canada) Ltd.

Preliminary studies by McCarter, Nairne & Partners, the architects and engineers, showed that the total area required for building services (heating, ventilation, washrooms, lunchroom, and storage), power and battery rooms, and frame room, equalled the area required for the equipment room. The basic design was thus established—a two-story building, with the entire second floor devoted to the equipment racks. The part of the first floor that was to be occupied by the frame was dropped 6 feet to obtain sufficient head room for 14-foot 5-inch distributing frames; the remainder of the first floor was placed at ground level.

The problem of introducing the cables into the frame room was resolved by extending fibre cable ducts underground from the street manhole, curving them up to locations in the floor, just inside the outer wall of the building. The cables were pulled in, and up the wall, and spliced in vertical potheads, from which termination was made overhead to the frame. Cabling to the equipment was accomplished through four 36-inch x 12-inch slots in the ceiling. It is planned that future cable additions will make use of Alpeth cable all the way from the manhole to the frame, thus eliminating potheads.



Only a railing separates the frame room from the power and battery room, the floor of which is 6 feet higher.

Only a low railing separates the frame area from the adjacent power and battery room. Splicers accustomed to dungeonlike cable vaults were for the first time able to work in surroundings comparable to those of their hitherto-more-fortunate brethren, the equipment installers. At the same time, the separation of the distributing frame and the switching equipment confines the jumpering activities around the frames to a separate room. All contacts with and activities of outside workers are confined to the frame room, which is accessed from the ground level. And the test desk and distributing frame are in the same location, eliminating the need for a loudspeaker system between them.

Paper-covered cable is carried directly into frame room, and spliced to frame cabling which is carried overhead.

To keep the roof line as low as possible, the mechanical consultant designed a perimeter type of warm-air heating and ventilating system that required no space for ducts under the ceiling. A natural-gas-fired boiler provides heat, which is transferred through standard heating coils to the air stream. Distribution is accomplished through continuous wall grills. Further, to provide maximum usable space in the equipment room, the roof was supported on long-span joists, resulting in a room about 100 feet long and 60 feet wide, without intermediate supports.

Windows were eliminated from the east and south elevations and held to a minimum on the west; the resulting reduction in solar heat permitted a considerable saving in the cost of the ventilating system. The north elevation of the building, on the other hand,

- Path Surveys & Site Selection Manual
- Profile Planning Charts
- Antenna System Calculator
- Graph Worksheets, Protractor
- System Planning Charts
- Frequency Band Designation Card
- Map Symbols Guide

Yours for the asking...
Raytheon's Microwave System Planning Kit

What's involved in planning a microwave system? What costs . . . technical problems . . . terrain problems . . . pitfalls? Raytheon's Microwave System Planning Kit tells you — gives you an invaluable briefing before you call in the microwave experts.

With the Kit you can engineer initial requirements, study tower sites, read topographical maps, learn about path clearances, FCC and FAA regulations. The Kit is available free from Raytheon, world's largest manufacturer of microwave tubes and equipment, and a reliable supplier to the telephone industry for over 25 years.

Raytheon microwave equipment designed for telephone use includes MCR-1000, a highly stable 1-watt system, capable of transmitting up to 240 voice channels. In the MCR-1000, you will find Raytheon-manufactured klystrons, receiving tubes, semi-conductors, ferrite devices. It is this comprehensive capability that assures Raytheon customers reliability and single-supplier advantages.

RAYTHEON

RAYTHEON COMPANY

EQUIPMENT DIVISION

Mail Today for Free Planning Kit

Director of Sales,
Dept. 1-2, Raytheon Company
Lexington 73, Massachusetts

Please send free Microwave System Planning Kit

☐ Planning a system. ☐ For reference only.
☐ Have Engineer call.

Name .....

Title .....

Company .....

Address .....

City & State .....

has been opened up with large expanses of glass, and the ironwork of the equipment racks and the long-span joists has been painted a brilliant orange. The result is reported to be an inspiration to building engineers and scientists of the University of British Columbia, not far away.

United of West; Ark., Kan., Mo. Tell Management Changes

A series of management changes in subsidiary organizations of United Utilities, Inc. has been announced jointly by the operating heads of the United Telephone Co. of the West and the United Telephone Cos. of Arkansas, Kansas and Missouri.

V. E. HIX

An addition to the management staff of United Telephone Company of the West, announced by the president, Otto Fuerst, and effective Apr. 1, is that of Verne E. Hix as assistant to the president at Scottsbluff, Neb.

Prior to this assignment, Mr. Hix served as general commercial superintendent, United Telephone Cos. of Arkansas, Kansas and Missouri, in Kansas City, Mo.

Following education in Iowa, Mr. Hix entered the telephone industry as a lineman with the Iowa State Telephone Co. in 1939. After serving in the South Pacific theater with the Army Signal Corps from 1942 to 1945, he transferred to the Central Missouri and Arkansas Associated Telephone Cos. at Warrensburg, Mo. as plant superintendent. When these properties were merged with the United System in 1954, he transferred to the Kansas City office as purchasing agent and plant engineer for the United Telephone Cos. of Arkansas, Kansas and Missouri.

He was promoted to outside plant and staff engineer in 1956, and was named

J. P. TROTTER

general commercial superintendent of the three operating companies in 1958.

J. G. Kreamer, president of United Telephone Cos. of Arkansas, Kansas and Missouri, announced these additional management personnel changes.

Joseph P. Trotter will become general commercial superintendent, United Telephone Cos. of Arkansas, Kansas and Missouri in Kansas City.

After three years in the Navy and graduation from Baker University, he started in 1949 with United Telephone Co. in Clinton, Mo. as assistant division commercial & traffic superintendent.

In 1955 he transferred to Kansas City as assistant to the general traffic superintendent, and was made general traffic superintendent in 1957. Mr. Trotter will have charge of commercial operations in the three states, with 135 exchanges and 112,000 telephones.

At the same time, Donald H. Zehnder

D. H. ZEHNDER

will be promoted from field traffic supervisor to general traffic superintendent. Mr. Zehnder started with United as a lineman in 1949. He became local manager at Warsaw, Mo. in 1953, and assistant district manager at Maryville, Mo. in 1956. He was then transferred to

WILMOT POESE

the traffic department in Kansas City in 1958 as field traffic supervisor.

Wilmot Poese, who started with United in 1949, has been promoted to field traffic supervisor on the Kansas City office staff. Mr. Poese was formerly commercial and traffic supervisor at Rolla, Mo.

Sapp Heads General of SE Community Relations, Durham

Carl F. Sapp, general manager of the Durham, N. C., Chamber of Commerce, has resigned to join the General Telephone Co. of the Southeast at Durham as manager of community relations for the company's six-state operating area of North and South Carolina, Georgia, Tennessee, Virginia and West Virginia.

Mr. Sapp joined the chamber in 1950 as assistant general manager and was made general manager in 1954.

Home Is Sanctuary

"The poorest man may in his cottage bid defiance to all the forces of the Crown. It may be frail, its roof may shake; the wind may blow through it; the storms may enter—the rain may enter, but the King of England cannot enter; all his forces dare not cross the threshold of the ruined tenement!"—WILLIAM PITT.

A Vacuum

"Memory is not wisdom; idiots can repeat volumes by rote.—Yet what is wisdom without memory?"—TUPPER.

Up to 90 of these toll-call tickets recorded in a single minute!

See how the RECORDAK Portable Microfilmer can cut your toll billing costs in half

What a difference taking pictures with a RECORDAK Microfilmer makes in your billing operations. In one simple step, you do away with the costly chore of having to post a description of each toll call.

It's all so easy. Your billing clerk just adds up all toll charges . . . enters the total and tax on the bill . . . then microfilms both the bill and the toll tickets (up to 90 items a minute) with the RECORDAK Portable. Original toll tickets are sent to subscriber along with the bill. And you have a complete, easy-to-read film record for instant reference in a RECORDAK Film Reader.

Results: time spent on posting is reduced 85% which cuts billing costs in half! Subscribers benefit, too—chances of errors are sharply reduced . . . and having toll tickets along with the bill helps explain charges, cuts inquiries way down.

Get all the facts. In addition to the RECORDAK Portable Microfilmer, Recordak also offers high-speed units for larger volume operations. For example, the new RECORDAK RELIANT 500 Microfilmer which microfilms up to 500 items a minute. Mail coupon today.

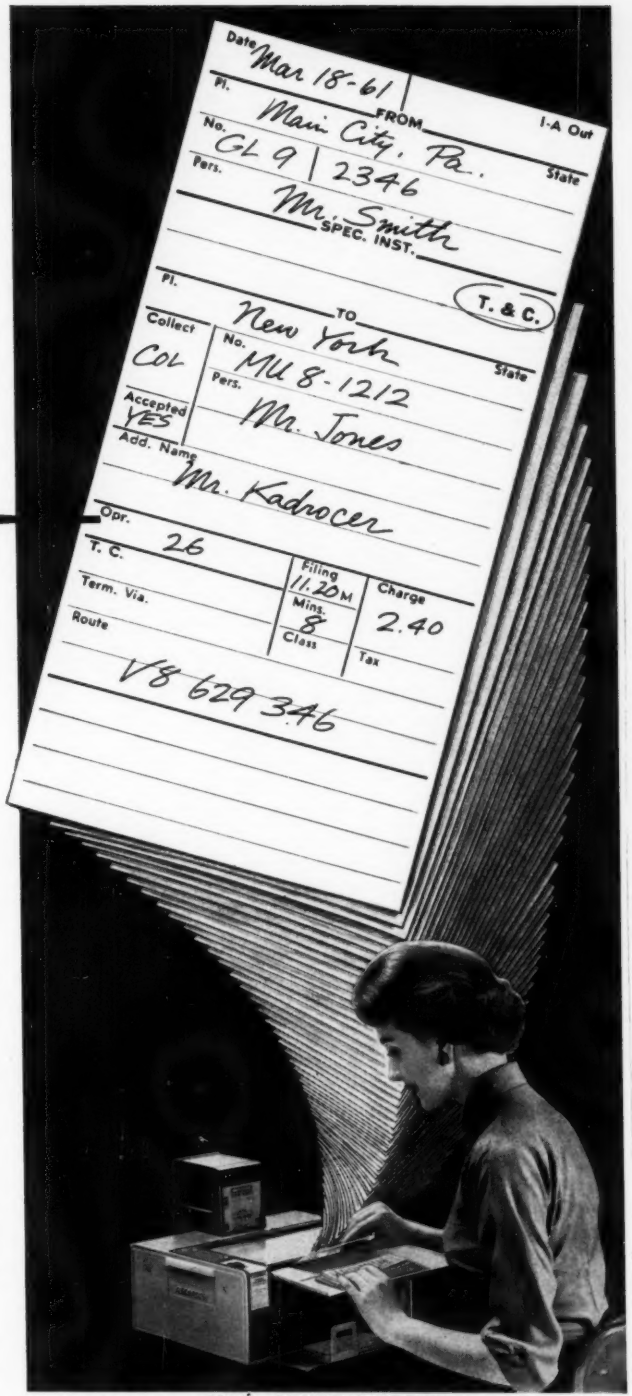
RECORDAK®

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming

—now in its 33rd year

IN CANADA contact Recordak of Canada Ltd., Toronto



MAIL COUPON TODAY

AA-3

RECORDAK CORPORATION
415 Madison Avenue, New York 17, N. Y.

Gentlemen: Please send details on RECORDAK Toll Billing System, also on RECORDAK Microfilmers.

Name_____ Position_____

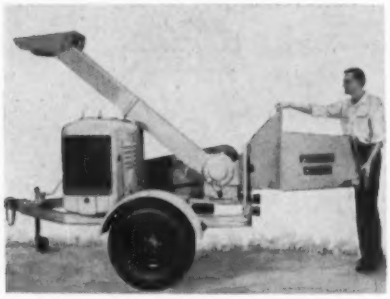
Company_____

Street_____

City_____ State_____

News on New Products

CHIPPER ACCESSORIES—Improved safety and economy in disposing of tree trimmings are said to result from two new accessories on Fitchburg chippers. W. N. Forman, president of the Fitchburg Engineering Corp., reports that a new safety stop switch will become standard on all new models. Located at the top of the feed apron, one flip of this switch is reported to stop the chipper within seconds for added safety.



A second switch, described as also being located at the rear for easy use, will give immediate control of the motor without having to move from the feeding position. This solenoid switch will idle the motor between actual feeding operations, Fitchburg says, thus decreasing gasoline consumption, reducing engineer wear, and making quieter operation possible. Request NP1570.

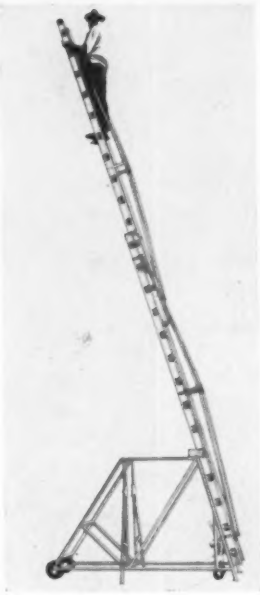
•

ROLLING SERVICE LADDER—The new Alco-Lite rolling service ladder is a self-supporting extension ladder unit and requires no secondary support, the manufacturer, Aluminum Ladder Co., has announced.

An Alco-Lite extension ladder is mounted on a rigid, welded steel frame that is equipped with 8-inch semi-pneumatic wheels and hand-retractable, swivel-type front casters. The large rear wheels are said to move freely over rough floors and allow the unit to be guided easily.

With the ladder in a horizontal position, the over-all dimensions of the entire unit are 30 inches x 70 inches—allowing the unit to be moved through standard doorways and narrow aisles, the company reports.

A cam-operated device locks steel rods into the bottom gusset-plate rung openings to hold the ladder securely in the upright position. Outriggers, which fold out of the way when not in use, extend to both sides to provide added



side stability when needed. Hand rails and a lineman's plastic belt attached to the top of the ladder are described as added safety features.

A 24-foot or 28-foot Alco-Lite heavy duty all-aluminum or Fiberglas extension ladder can be specified on this unit. The non-conducting Fiberglas ladder is recommended for use around electricity. Both type ladders are said to surpass the requirements of ASA Code A14.2 for portable metal ladders.

Mounting the Alco-Lite rolling service ladder on a truck provides an efficient way to service wires, poles and other out-of-reach jobs at widely scattered locations, the company points out. Request NP1571.

•

POWER CUTTER—Utica Drop Forge & Tool Division of Kelsey-Hayes Co. has announced a new wire-cutting tool, the Power Cutter.

The UA-100 Power Cutter is an air-operated plier type cutter with a diago-

nal head. The tool is designed for use on large-volume electronic production lines.

Utica states that advantages of this cutting tool include: increased efficiency for operators, and considerable fatigue reduction in work where some operators make many thousand cuts per day. Also, the tool may be operated with either hand; and it cuts as quickly as

(Continued on page 54)

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

NP1570_____; NP1571_____; NP1572_____; NP1573_____;
NP1574_____; NP1575_____; NP1576_____; NP1577_____.

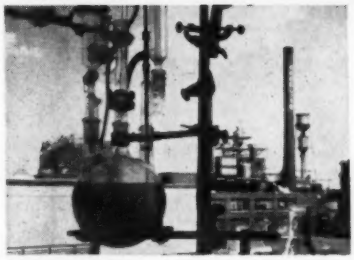
Name.....

Company.....

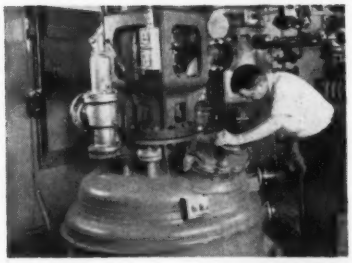
Street.....

Town and State.....

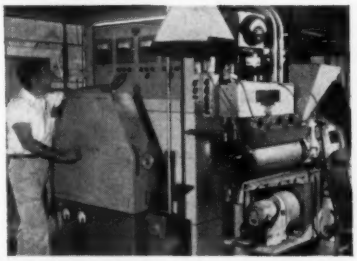
3/18/61



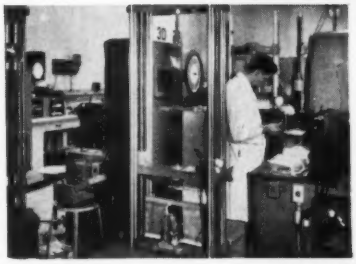
Formulation of New Materials



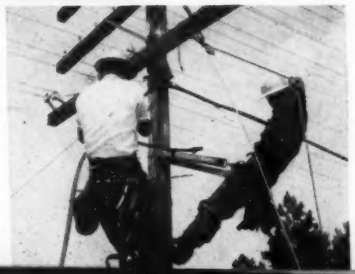
Production of Experimental Quantities



Study of Extrusion Characteristics and Techniques



Evaluation of Physical and Electrical Properties



Proven Products— Ready to Serve You

Unsurpassed facilities for Plastics Research and Development

LEAD TO UNSURPASSED TELEPHONE CABLE PERFORMANCE

Pictured are the buildings of Union Carbide Plastics Company's modern Research and Development Center at Bound Brook, N. J. Here are found unexcelled facilities for the development and evaluation of the newest and widest variety of polyethylene and vinyl insulating and jacketing materials for telephone cable applications.

Take a look at just a few of the activities carried on at this Center to help fulfill telephony's present and future needs. These range from the formulation and careful testing of the newest materials with improved mechanical and electrical properties . . . to the study of modern extrusion methods so vital to the production of superior products. Your future requirements are anticipated by long-range development programs that seek to broaden the range of properties to meet telephony's future requirements. Better products and better service on our part . . . lead to the kind of trouble-free telephone cable installation and service that can save you time and money.

Telephone companies, contractors and engineers, and cable manufacturers . . . all can gain immeasurably from the unsurpassed experience and technical knowledge of one of the oldest and most progressive producers of polyethylene and vinyl for insulation and jacketing. For more information about BAKELITE Brand plastics, write Dept. LM-139C, Union Carbide Plastics Company, Division of Union Carbide Corporation, 270 Park Ave., N. Y. 17, N. Y. *In Canada:* Union Carbide Canada Limited, Toronto 12.

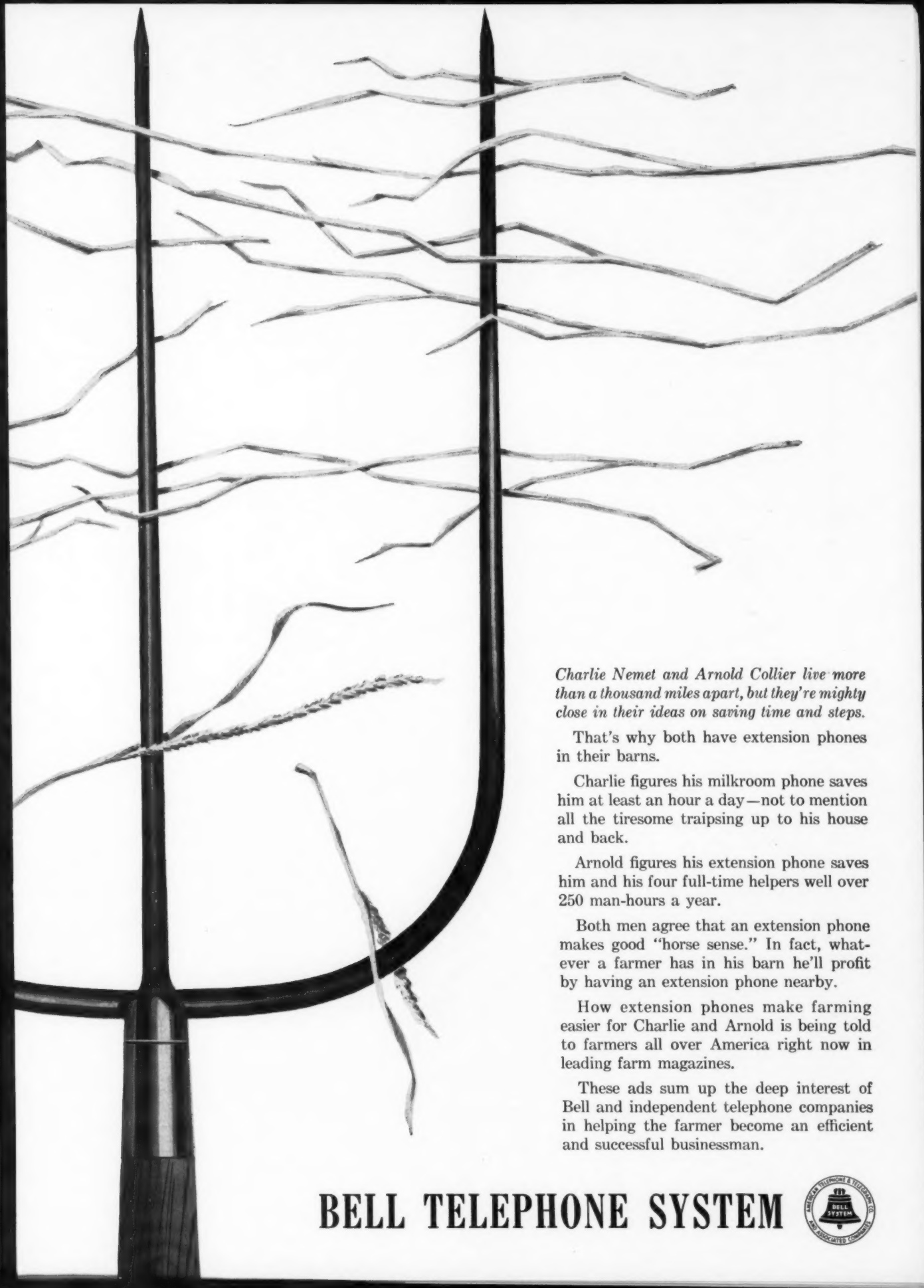
UNION CARBIDE

BAKELITE and UNION CARBIDE are registered trade marks of Union Carbide Corporation.

These farmers use good, modern "horse sense" to save time and steps

Charlie Nemet of Hampshire, Illinois

Arnold Collier of Dixon, California



Charlie Nemet and Arnold Collier live more than a thousand miles apart, but they're mighty close in their ideas on saving time and steps.

That's why both have extension phones in their barns.

Charlie figures his milkroom phone saves him at least an hour a day—not to mention all the tiresome traipsing up to his house and back.

Arnold figures his extension phone saves him and his four full-time helpers well over 250 man-hours a year.

Both men agree that an extension phone makes good "horse sense." In fact, whatever a farmer has in his barn he'll profit by having an extension phone nearby.

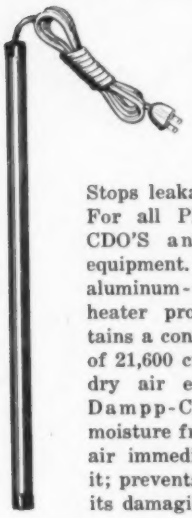
How extension phones make farming easier for Charlie and Arnold is being told to farmers all over America right now in leading farm magazines.

These ads sum up the deep interest of Bell and independent telephone companies in helping the farmer become an efficient and successful businessman.

BELL TELEPHONE SYSTEM

WHAT'S NEW AT SUTTLE

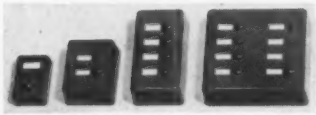
DAMPP-CHASER



Model F

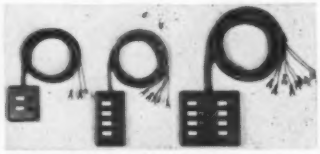
Stops leakage and corrosion. For all PBX, unattended CDO'S and central office equipment. This low-wattage, aluminum-covered electric heater produces and maintains a continuous circulation of 21,600 cubic feet of warm, dry air every 24 hours. Dampp-Chaser evaporates moisture from equipment and air immediately surrounding it; prevents condensation and its damaging effects.

PUSH BUTTONS



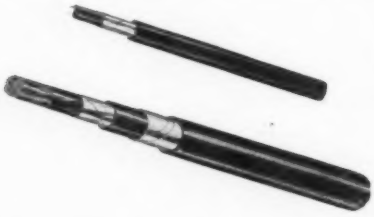
SE-554 Price $ .65 ea. SE-559 Price $1.60 ea. SE-561 Price $3.50 ea. SE-565 Price $5.60 ea.

Cork base pads to prevent scratching are included with SE-559, SE-561, SE-565.



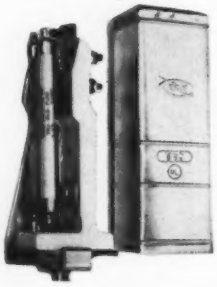
SE-559W Price $2.40 ea. SE-561W Price $4.40 ea. SE-565W Price $6.80 ea.

These are available with a 6 ft. 22 gauge flexible cord, pre-wired.



COLOR CODED ANSONIA CABLES

The Ansonia Ankoseal plastic covered cable is unaffected by acids, alkalies, fumes, sun, or other weather or earth conditions. The inside sheath is a continuous spiral of heavy aluminum alloy, providing an inductance shield and grounding circuit. Ankoseal cable is carried in stock, in Lawrenceville, for immediate shipment of less-than-reel quantities. Be sure to check current prices with Suttle—first.



INDOOR OUTDOOR COOK PROTECTOR

COOK ELECTRIC'S Type "O" Substation Protectors are a single circuit protector equipped with a pair of fuses and a pair of high-potential arrestors. The body is a single-piece, heavy glazed porcelain. Fuse and lightning arrestor clips are phosphor bronze fastened to the body in a single-piece, heavy glazed, on the reverse side, thus giving instrument wires maximum protection for the hot wire. In stock at SUTTLE'S Lawrenceville, Illinois, warehouse.

For further information, specifications or quotations on these telephone supplies—write, wire or telephone

SUTTLE EQUIPMENT CORPORATION

401 North 15th St., Lawrenceville, Illinois
Phone: Lawrenceville 782

135 S. La Salle St., Chicago 3, Illinois
Phone: DEarborn 2-3108

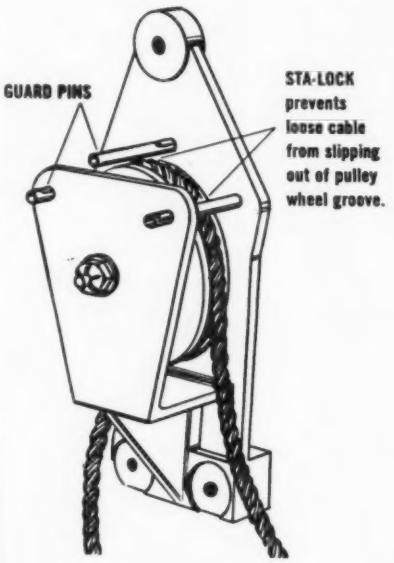
Manufacturers, suppliers and printers to Telephone Men—Since 1910

the actuating lever can be depressed and released.

Utica describes the power cutter's cutting edges as electronically induction-hardened and the jaws, tapered to allow access to restricted areas. Request NP1572.

•

PULLEY GUARD PIN—Sta-Lock, a precision-made pulley guard pin that is reported to cut installation time and reduce fastening costs, is now in full production under its new owners, Aero Bolt & Screw Co., Inc., manufacturers of Uniseal self-sealing fasteners.



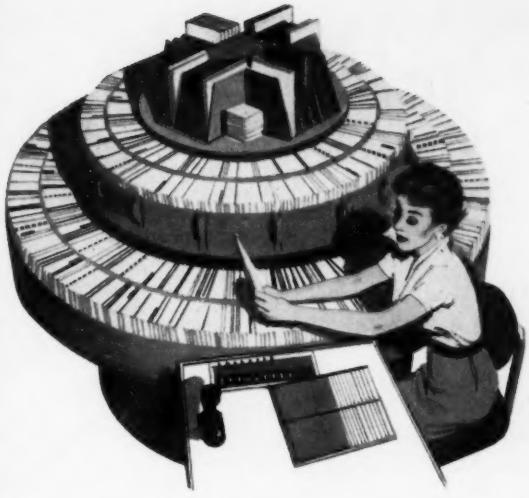
Sta-Lock has found universal application and acceptance, Aero Bolt & Screw says, as a replacement for the old flathead clevis pin. In this application, it is used to prevent control cables, guide wires from slipping off their pulleys when the tension is relaxed for overhauling purposes. They can be quickly inserted, the manufacturer states, without the necessity of using a cotter pin or lock wire.

Sta-Lock is made from spring steel or anodized aluminum alloy. It is available in two types: The K-type with the spring tongue at the front of the pin and the T-type with the spring tongue close to the head of the pin. Sta-Lock is certified to NAS 427 standards.

Other applications for the fastener include use as a holding pin for riveting or welding two pieces of materials together, or non-stress separation of two metal plates, using a spacer between the two pieces to be separated. Request NP1573.

(Continued on page 56)

50% MORE OUTPUT WHEN SHE STAYS PUT



NEW ACME VISIBLE ROTARY brings line or trouble card data to users with pushbutton speed!

Without moving from their desks around a smartly modern Acme Visible Rotary, 1, 6, 12 or more users have instant access to as many as 250,000 records. No more waste steps between desks and files. No more reaching or stretching. Per hour output goes up, fatigue errors go sharply down. Send coupon for details on power and manual Rotaries, designed to telephone specifications by Acme Visible engineers working closely with telephone operations experts.

V-ANGLE LINE CARD TRAY. Usable from either end. Flips open at any card, and stays open with supported V-Angle, leaving both hands free. Measured space control keeps space ready for refiling when card is removed or changed.

ADJUSTABLE PARTITIONS IN LINE CARD TUBS are moveable. In event size of your line records is changed in the future, partitioning is easily shifted to fit your new requirements.

ACME VISIBLE

World's Largest Exclusive Makers of Visible Record Systems
Acme Visible Records, Inc., 4003 West Allview Dr., Crozet Va.

Without cost or obligation, please send more information about your new equipment and systems for handling phone records. And let me have the address of the nearest representative in your nationwide sales and service organization.

We have_____ line cards and _____ cable and terminal records to handle.

Name_____ Title_____

Company_____

Address_____ City_____ Zone_____ State_____

NEW General Telephone Cleaner

After two years of hard work by our chemists, this product has been perfected. It will remove all stains from the new plastic telephones . . . does not affect the cases in any way . . . is non-caustic, non-corrosive and non-inflammable . . . will not injure hands using it . . . makes cases look like new.

An Ideal Pair

New General Telephone Cleaner coupled with Magnolia Glayzit Telephone Refinisher have been demonstrated in over 200 exchanges with the result: orders placed promptly. Care to place yours now?

Magnolia Glayzit

Telephone Refinisher

POLISHES

1. SPRAY IT ON . . . . 2. WIPE IT OFF . . . and presto: A hard glossy surface that lasts for months. America's finest spray wax.

Cleans, revitalizes, preserves the surface! Dustproof—polish can't come off on cloth when dusting. Only dust comes off! Restores cabinet-maker's finish to furniture! Adds years to life of any finished surface! Supreme for telephones.

MAGNOLIA CHEMICAL CO., INC.

CHICAGO • LAFAYETTE, IND. • TAMPA • DALLAS
LOS ANGELES

DISTRIBUTED BY

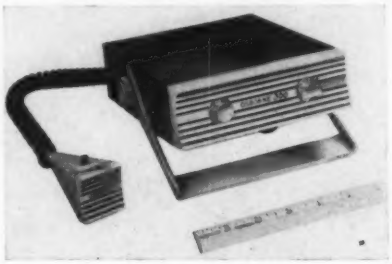
LEICH SALES CORP.

427 WEST RANDOLPH STREET

CHICAGO 6, ILLINOIS RAndolph 6-5441

TRANSISTOR BAND TRANSCEIVER —An all-transistor Citizens' Band transceiver is offered by Osborne Electronics Corp. Called the Osborne 300, the unit is said to be 1/5 the size and weight of average "Class D" equipment.

The unit's 9-transistor circuit is reported to require 10 per cent of the operating power of conventional tube-type units. It operates on any of the 23 allocated Citizens' Band channels.



Features include: a four-channel selector with plug-in crystals; and an all-metal die-cast case that measures 1⅞ x 6 x 7 inches. Osborne states that an efficient squelch control and noise limiter, plus a push-to-talk microphone with 3-foot coil cord come with the transceiver as standard equipment.

Advantages stated for the Osborne 300 include:

Small size. In mobile units it will fit under any dash, even the smallest sports car, not taking away valuable leg room, the company says.

Low operating power (no more than an automobile dome light). Failure to turn the set off is said not to cause appreciable battery drain, even if left on overnight.

The company states that boat owners looking for a two-way marine radio will find the 300 unit practical. Operating in the 27-megacycle range, two-way communications can be provided directly from a shore base station or mobile unit to vessels afloat. Heretofore, this has not been legally possible with marine radio-telephone equipment.

It does not require a licensed technician to tune. Heat rise is low, Osborne explains.

Electrical properties featured include: Selectivity of ±2.6 KC at 6 db and the highest adjacent channel attenuation of any CB set to date at 50 db.

Receiver and transmitter, crystal controlled to ±.005 per cent of assigned channel frequency.

Compliance with "Part 19" of the rules and regulations of the FCC. The Osborne 300 unit has 3.2 watts peak envelope power, and the company says, better than one microvolt sensitivity for a 10 db signal-to-noise ratio, or typically .5 microvolts.

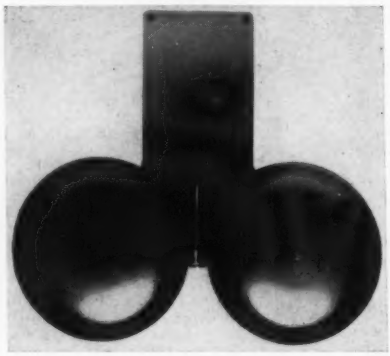
An RF amplifier described as highly efficient.

The unit operates on 115 volts with a converter available for 6, 12, 24, or 32 volt operation.

Request NP1574.

•

LOUD-RINGING GONG — Suttle Equipment Corp. announces that its 6-inch loud-ringing gong is now available in six standard colors, including the new



fire engine red. Its loud ringers, Suttle states, are available in frequencies applicable to telephone communications —the synchromonic, decimonic, and harmonic. Request NP1575.

•

PLASTIC GUY PROTECTORS — A plastic guy guard of plasticized vinyl compound in a new design is now available from Protecto Plastic Products Co. and can be furnished in permanent safety colors of yellow, white and red.

This guard is described as non-conductive, weather- and temperature-resistant, and will not burn, rust or dent.

Also, it does not have sharp edges that might cut individuals or mar vehicles.

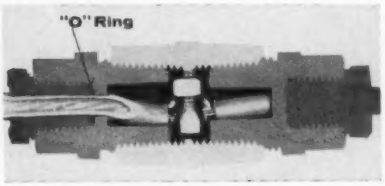
The impact strength is high, even at —20 degrees F.

The guard snaps in place and fits all guy sizes from ¼ inch to ½ inch. It is permanently secured to the strand with non-corrosive clamps. Guards are 72 inches in length. The only tool required for installation is a screw driver.

Twenty of the guards packaged for shipment weigh only 40 pounds. Request NP1576.

•

UNDERGROUND CABLE CONNECTION SEAL — What is described as a revolutionary new method of sealing underground direct-burial cable connections has been developed by Western Plastics Co.



The device, which will be marketed under the name "Splicap," provides a moisture-tight, fool-proof seal that can be made in well under half the time required using ordinary methods, according to Western Plastics engineers.

Splicap consists of five plastic sections. Threaded to fit into each other, two are used on each end of the splice and these two in turn are connected by the other threaded section. The moisture proofing is accomplished through the use of a neoprene "O" ring around the wire between the two plastic connectors. The ring expands to a snug fit around the wire as the two sections are screwed together.

The actual wire splice is made using any of the several standard connectors on the market. The company points out that Splicap is, of course, inserted over the open ends of the wire before the splice is made.

Western Plastics president John Lainson stated that, with Splicap it is possible to make a perfect cable joint seal in the field, in any kind of weather, that will last as long as the wire itself. He added that one doesn't need any special tools, putty or plastic tape.

Splicap is made of A.B.S. semi-rigid plastic. Its insulating qualities are excellent and it is non-corroding, Western Plastics states. Splicap is made to fit cable sizes #2 and #14. Request NP1577.

Burden of the Free

"Liberty means responsibility. That is why most men dread it."—GEORGE BERNARD SHAW.

TELEPHONE EXECUTIVES! SEE FOR YOURSELF... the most versatile business machine in the business world **DOES MORE JOBS!**

On Wall Street, Michigan Avenue . . . Main Street U.S.A. . . . "Thermo-Fax" Brand Copying Machines are copying correspondence, addressing labels, laminating, making statements, projection transparencies, and paper printing plates. Also, systems papers for as little as 2¢ a copy. Plus many more jobs.

And all-electric "Thermo-Fax" Copying Machines are delivering each job perfectly dry in just 4 seconds!

The "Thermo-Fax" Copying Machine is the business man's business machine for one sound reason . . . does more jobs! See for yourself. Mail this coupon.

ADDRESSING LABELS PROJECTION TRANSPARENCIES LAMINATING
SYSTEMS PAPERS GENERAL COPYING PAPER PLATES

Thermo-Fax®
BRAND
COPYING MACHINES

Thermo-Fax COPYING PRODUCTS 3M COMPANY

MINNESOTA MINING AND MANUFACTURING COMPANY
...WHERE RESEARCH IS THE KEY TO TOMORROW

THE TERM "THERMO-FAX" IS A REGISTERED TRADEMARK OF 3M COMPANY

MINNESOTA MINING AND MANUFACTURING CO.
Dept. DDD-3181, St. Paul 6, Minnesota

At no obligation, I'm interested in information about how a "Thermo-Fax" Copying Machine can simplify the jobs mentioned above.

Name_____

Company_____

Address_____

City_____ Zone___ State_____

☐ Check if you now own a "Thermo-Fax" Copying Machine.

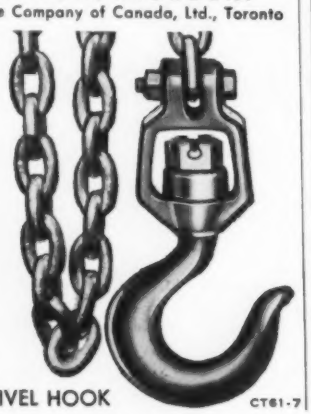
LINEMAN'S CHOICE

CHANCE 1 TON HOIST

Mechanically simple and fast operating, it weighs only twelve pounds, free-wheels for easy load pick-up, and locks automatically to prevent dropped loads. Its handle operates from either side. The chain won't bind or kink. Precision gearing permits half or full link take-up. Controls can be worked when wearing gloves. And it has a 360° swivel hook that turns freely under full load. (A safety latch hook is optional.) It is proof-tested to 3000 pounds before leaving the factory. Ask the linemen why these features make it the linemen's choice. Linemen helped design it.

Chance also makes 2-ton hoists.
Order from your line equipment wholesaler.

A. B. CHANCE CO.
CENTRALIA, MISSOURI
A. B. Chance Company of Canada, Ltd., Toronto



360° SWIVEL HOOK CT61-7

Helpful Literature

ELECTRIC GENERATING PLANTS—The entire line of Onan electric generating plants, both gasoline and Diesel-driven, is listed on a black and white catalog sheet, now offered by Onan.

This 8½ x 11-inch page (printed both sides) illustrates and describes the Onan line, from the smallest portable electric plant (500 watts) to the largest emergency Diesel set (230,000 watts). It is designed to appeal to the users and specifiers of auxiliary generating equipment.

Typical units in each size range are pictured and a brief description of the outstanding features of each series is given.

Condensed specifications showing the capacity, model number, electrical details, engine characteristics, and overall dimensions are incorporated in this Onan sheet. Request HL647.

•

LIGHT-WEIGHT AIR-POWERED BORING UNIT—The new Ka-Mo A-20 bulletin provides information on a light-weight air-powered boring unit capable of augering 2¼ to 16-inch diameters, now released by the Kwik-Mix Co.

The bulletin is fully illustrated. It describes the A-20 boring unit, presents a capacity chart, and discusses various track and optional combinations.

The A-20 consists of a 6-hp vane-type air motor, having 71.2-to-1 gear reduction, with forward and reverse control valves, and the standard Ka-Mo double-track mounting.

Kwik Mix states it can be used with a range of cutting heads and auger sections. This range varies from nearly 100 feet of 2¼-inch hole to 42 feet of 16-inch hole.

The bulletin also points out that the unit is useful for boring in highway, water, sewer, and air shaft work. Request HL648.

•

TRANSITE TELEPHONE DUCT DESIGN DATA—A four-page folder published by Johns-Manville gives designers of cable-carrying systems and specifiers of materials complete information on the dimensions and fittings of the company's Transite telephone duct.

Termed a simple and easy-to-use reference piece, the folder quickly identifies the complete Johns-Manville product line; and gives dimensions and illustrations of the pipe, plastic coupling, deflection coupling, square termination, bends, curved fittings, adaptors and plugs.

Also illustrated are methods of field cutting and field tapering. Request HL649.

•

LUBRICANT AND COAXIAL CONNECTOR—New data on Prodelin's Prodelube #8, a recently developed lubricant and coaxial connector designed to eliminate transmission line failures caused by galling, are now available.

The information covers product de-

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

HL647_____; HL648_____; HL649_____; HL650_____;

HL651_____; HL652_____.

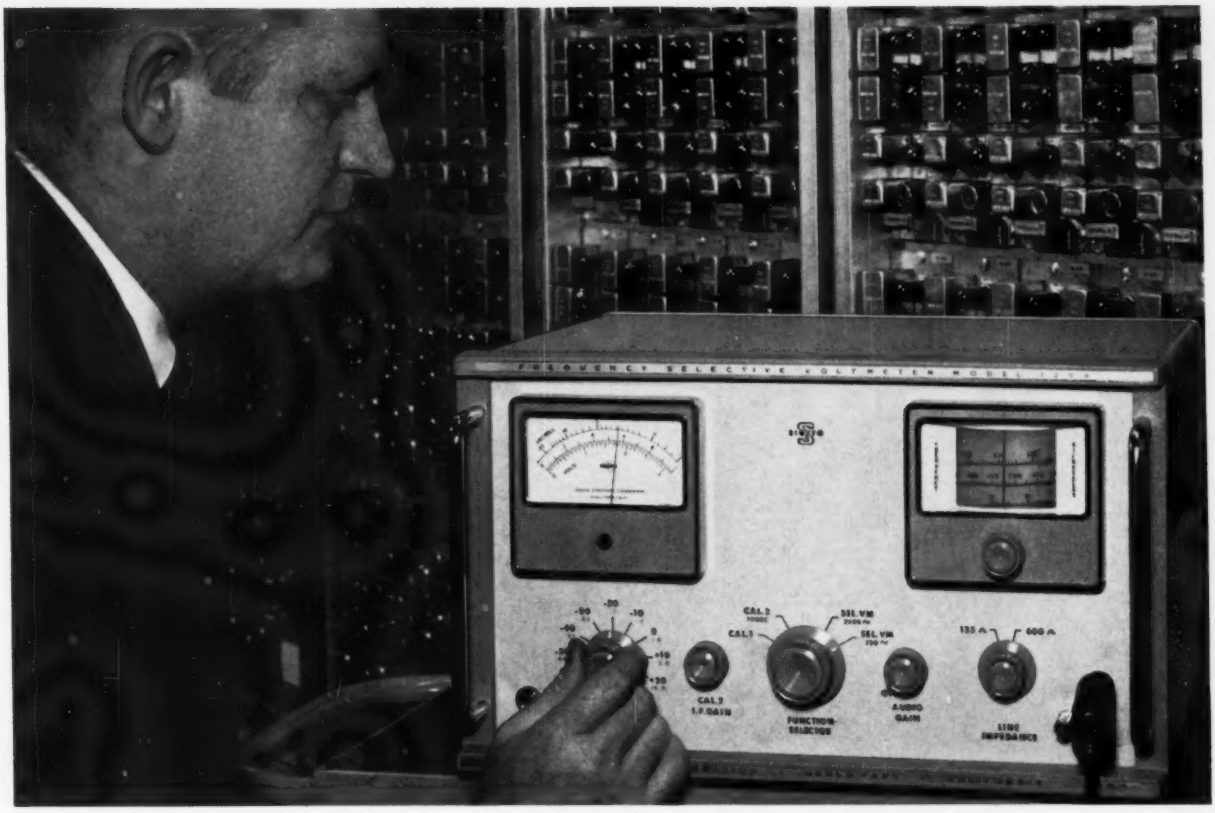
Name.....

Company.....

Street.....

Town and State.....

3/18/61



Why is the Sierra Frequency Selective Voltmeter the standard of the communications industry?

Performance-proved by thousands of users! • Accepted by all major carrier systems manufacturers, specified by most! • Uniquely convenient, versatile, dependable for monitoring carrier modulation level!

- Single frequency band, one continuous tuning range—eliminates band switching
- Flat voltmeter section—for accurate measurement, easy detection of spurious signals
- Wide bandwidth—1 to 620 kc—covers 120 channels per L carrier allocation
- Coarse, fine tuning on a single knob—for greater convenience
- Crystal controlled calibration oscillator—for checking both frequency and level
- Domestically produced—for years-ahead engineering, rugged construction
- Dual selectivity—versatility for communications test, wave analysis, general lab use

See it at IRE, Third floor Just behind escalators.

SPECIFICATIONS
MODEL 125A

Frequency Range
Tunable Mode: 3 kc to 620 kc
Flat Mode: 1 kc to 620 kc

Measurement Range
Tunable Mode: —90 dbm to +32 dbm
Flat Mode: —30 dbm to +32 dbm

Selectivity
Narrow: Down 3 db 125 cps off resonance; down 45 db 500 cps off resonance
Wide: Down 3 db 1.25 kc off resonance; down 45 db 5 kc off resonance

Price $895.00, f.o.b. factory

Call your Sierra representative or write direct. Sierra Model 125B-CR, with upper and lower sideband carrier re-insertion, and Model 125B-Y, with patchcord connections for type "O" and type "N" Western Electric carrier, also available at additional cost.

Data subject to change without notice.

sierra

SIERRA ELECTRONIC CORPORATION

A Division of Philco Corporation

7127T BOHANNON DRIVE • DAvenport 6-2060 • Area Code 415 • MENLO PARK, CALIF., U.S.A.

Sales representatives in all principal areas.

Canada: Atlas Instrument Corporation, Ltd., Montreal, Ottawa, Toronto, Vancouver.

Export: Frazar & Hansen, Ltd., San Francisco.

7127

PENGO AUGERS

Save you money 4 ways

PENGO HEAVY-DUTY Twin Helix Augers—14" through 96" hole diam.

1 **BORE FASTER**...put real "teeth" in earth drilling, save wear and tear on your diggers.

2 **STAY ON THE JOB LONGER** ...all wearing parts replaceable in the field; no down-time for shop welding.

3 **COST FAR LESS TO MAINTAIN** ...reversible teeth cost only 90¢ each, pilot bit only $8.00. Parts interchangeable on all PENGO augers you are using...less inventory!

4 **A SIZE AND TYPE FOR EVERY DRILLING JOB**

PENGO BORING HEADS for welding to your present auger flights.

PENGO FLIGHT AUGERS and ANCHOR AUGERS—6" through 36" diam.

IF IT'S AUGERS YOU WANT, WE HAVE 'EM—JUST ASK US!

PENGO Augers and Boring Heads are available for all popular types of diggers, from light-duty post hole and farm tractor machines to the largest heavy-duty earth drills. Write today for free catalog; please address Dept. 106.

13-B

PETERSEN ENGINEERING CO., INC.
Santa Clara, California

scription, design features and recommended applications.

Also included are test results and comparative photos. Request HL650.

•

SUPPLY CATALOG — Issued recently, the Suttle Equipment Corp.'s supply catalog, showing current prices on communications supply items, is reported to contain many new lines including new telephone instruments, additional wire and cable listings, new tool listings, and the latest in station apparatus and protection equipment. Request HL651.

•

OPEN-CONSTRUCTION BOOTHS — A four-page folder is available from Burgess-Manning Co. describing its line of open-construction, acoustical telephone booths.

Covered, the company says, are the contribution the booths make to more convenient, comfortable telephoning in noisy areas, plus their maintenance-free, and space-saving advantages. Request HL652.

1960 Hawaiian Co.'s Most Expansive, Per Annual Report

Hawaiian Telephone Co., Honolulu, in 1960 added more telephones, completed more transpacific and interisland calls, and spent more money expanding and improving telephone service than in any previous year in the company's history, it was reported on Mar. 10.

The company's activities are described in its 1960 annual report now being distributed to nearly 12,000 stockholders.

"We added 17,038 telephones to our system during the year; completed 516,527 transpacific and 538,317 interisland calls; and spent $16,551,645 expanding and improving our system," said J. Ballard Atherton, president.

According to the report, Hawaiian Telephone's total operating revenues for the year were $24,939,000, while operating expenses reached $14,765,000. Federal and state taxes totalled $5,340,000; and in addition, telephone subscribers paid $2,107,256 in federal excise taxes, making telephone service the highest taxed of all public utility services.

Mr. Atherton attributes the company's 1960 growth to an accelerated expansion of Hawaii's economy, with almost all recorded economic indices up. To help meet the needs for additional capital in 1960, the company sold 5.5 million dollars in mortgage bonds and

through hot jungles or arctic cold or anywhere in the free world

GHO teams conquer terrain, weather and labor problems to lay cables and string lines in populated areas or desolate foreign soils . . . on schedule.

Highly trained men, fast-moving equipment and more than the usual amount of courage have gone into the successful completion of such jobs. These same skills are available to serve your requirements, too, whether the distance involves 100 feet or hundreds of miles, Gustav Hirsch Organization, Inc., is the most efficient service available.

GHO
GUSTAV HIRSCH ORGANIZATION, INC.
COLUMBUS 12, OHIO
HUdson 8-0611

5 million dollars in preferred stock, he pointed out.

A report of the company's 1960 activities will be made at the stockholders' annual meeting scheduled for Mar. 22 at the Princess Kaiulani Hotel. At the meeting, stockholders are expected to take action on a proposed two-for-one common stock split. The split has already been approved by the Hawaiian Public Utilities Commission and is recommended by the company's board of directors.

C. J. McLean Named Vice President of B. C. Telephone

C. John McLean, who was formerly vice president and general manager of the North-west Telephone Co., was elected a vice president of the British Columbia Telephone Co. on Mar. 9. Election of officers took place after the annual meeting of shareholders which re-elected the 1960 board. The Northwest Telephone Co. was amalgamated with British Columbia telephone Jan. 1, 1961.

Mr. McLean, son of C. H. McLean, president of British Columbia telephone, will serve as vice president—revenue requirements and will handle special development projects.

G. A. Kennedy, who has been vice president—revenue requirements, becomes vice president—finance, a new position.

W. S. Pipes has had his title changed from vice president and general manager to operating vice president.

George Wragg, assistant treasurer, will also serve as assistant secretary.

Following is the full slate of officers chosen by the directors: Gordon Farrell, chairman of the board; C. H. McLean, president; G. A. Kennedy, vice president—finance; W. S. Pipes, operating vice president; C. J. McLean, vice president—revenue requirements; H. M. Boyce, vice president and treasurer; E. T. Squire, vice president—marketing; J. R. Evans, secretary; George Wragg, assistant secretary and assistant treasurer; and W. D. Stevens, comptroller.

Request Authority Declare, Issue N. C. Stock Dividend

The Monroe Telephone Co., on Mar. 6 asked the North Carolina Utilities Commission for authority to declare and issue a 10 per cent stock dividend.

The company said it has outstanding 59,400 shares of common stock at par value of $10. Its 1960 profit was $66,297.98.

make more MONEY

By specifying Lynch B-510 "0" Type Carrier Telephone Systems

A bigger share of toll separation revenues is assured when you install your own B-510 at your end of the toll-circuit. Lynch B-510 "0" type systems are compatible with W. E. Co's "0" systems with respect to frequency, levels and signaling.

Get the complete profitable story from your Graybar salesman or write us direct.

Distributed by GRAYBAR

Lynch

LYNCH COMMUNICATION SYSTEMS INC.

695 BRYANT STREET, SAN FRANCISCO 7, CALIFORNIA
EXBROOK 7-1471 • AREA CODE 415

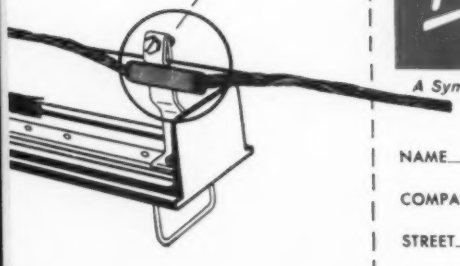
Distributors Throughout the World

For Multipair Wire...

500 SERIES

ready access wire terminal

- Used with wire-messenger supported Multipair Wire
- Easily installed on existing wire
- Accommodates up to four Catalog No. 105 (6-pair) Terminal Blocks
- Mounts directly on the support wire



Reliable ELECTRIC COMPANY *Franklin Park, Illinois*

A Symbol of Integrity Since 1909

Please send me current literature describing Ready Access Wire Terminals.

NAME_____ POSITION_____

COMPANY_____

STREET_____

CITY_____ ZONE____ STATE_____

And where you need

a smaller unit . . .

550 SERIES

ready access wire terminal

- COMPACT—*Half the length* of the Series 500 terminal *with all the same advantages.*
- Accommodates up to two protected or unprotected Wire Terminal Blocks or loading coils.
- Has an improved mounting bracket.

Fill out and mail coupon for full details.

Reliable

Clapp Assumes Post of REA Administrator

Norman M. Clapp, of Lancaster, Wis., took office as the seventh administrator of the Rural Electrification Administration on Mar. 9.

Born in Ellsworth, Wis., on Oct. 28, 1914, Mr. Clapp was graduated from Lawrence College of Appleton, Wis., in 1937. He is a member of Phi Beta Kappa.

N. M. CLAPP

He was administrative assistant to Sen. Robert M. LaFollette Jr., from 1935 to 1937 and from 1939 until 1944. In that position, he was responsible to the senator for matters affecting rural electrification in Wisconsin.

In 1944, Mr. Clapp bought the *Grant County Independent,* a weekly newspaper in Lancaster, and he served as its editor and publisher until 1958. From 1953 to 1958, he also was a partner in the Muscoda (Wis.) Publishing Co., publishers of another weekly, The Muscoda *Progressive.*

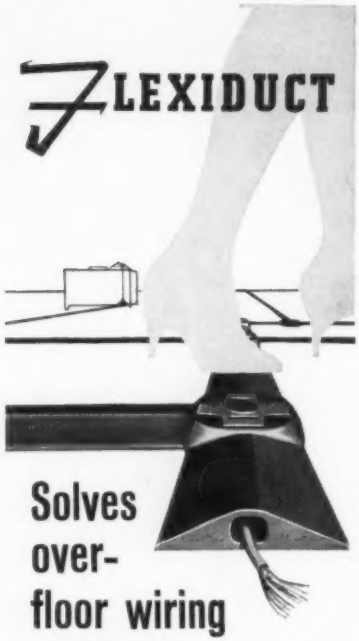
While editing the *Independent,* Mr. Clapp won a community press award for an editorial on rural electrification. He also handled several public relations assignments for the Grant Electric Cooperative, an REA-financed electric system with headquarters at Lancaster, and participated in other co-op activities.

He is a brother of Gordon Clapp, former general manager and chairman of the board of the Tennessee Valley Authority.

Authorize Loan in Arkansas

The Arkansas Public Service Commission on Feb. 21 authorized the Sulphur Springs Telephone Co., Inc. to borrow $45,000 from General Dynamics/Electronics. These funds, repayable over a 20-year period, will be used by the Sulphur Springs company to improve service.

FLEXIDUCT



Solves over-floor wiring problems

- ECONOMICAL • EFFECTIVE
- FLEXIBLE • SAFE
- EASY, NOISELESS INSTALLATION

Only two parts handle all over-the-floor duct work—duct and universal fitting. Duct available in 3 sizes:

No. 1 Chase ¼" x ½";
No. 2 Chase ½" x ¾";
No. 3 Chase ¾" x 1";

Other tees, ells and risers also available.

UNIVERSAL FITTING
Part No. 345
(Patent Pending)

Always Keep Flexiduct on Hand Available through:

Buckeye Telephone & Supply Co.
Graybar Electric Co., Inc.
Kellogg Switchboard & Equipment Co.
Leich Sales Corp.
Stromberg-Carlson
Western Electric Co., Inc.
Winders & Geist, Inc.

Write for descriptive leaflet.

WINDERS & GEIST, INC.
2219 North Cotner Blvd.
Lincoln, Nebraska

Independents Report 6% Station Gain in 1960

Independent telephone companies had a station gain in 1960 of 643,000 or 6.0 per cent, according to data released, as of Dec. 31, 1960, by the United States Independent Telephone Association. Bell System station gain for the same period amounted to 4.8 per cent, the USITA stated.

The Independent industry is now comprised of 3,300 companies, serving 10,705 exchanges and 11,428,000 telephones.

Total Independent plant investment during 1960 increased from $3,580,369,000 to 4 billion dollars. Ninety per cent of the Independent telephones are now dial operated. Number of companies, due to mergers and consolidations, has decreased from 3,560 to 3,300. Gross revenues increased during 1960 from $915,189,000 to $1,028,500,000.

A comparison of the Bell System and Independent companies, as of Dec. 31, 1960, follows:

	Independent	*Bell System*	*Total*
Total telephones	11,428,000	62,989,000	74,417,000
Number of operating companies	3,300	23	3,323
Number of exchanges	10,705	6,726	17,431
Investment in telephone plant	$4,000,000,000	$24,721,830,000	$28,721,830,000
Gross revenues	$1,028,500,000	$8,110,562,000	$9,139,062,000
Number of employes	99,500	594,900	694,400

Authorize Interim Dial Rates at 7 Kan. Exchanges

The Kansas Corporation Commission on Mar. 1, authorized Northern Kansas Telephone Co., Ottawa, to collect interim dial rates at seven exchanges which are in the process of being cut over to dial service (TELEPHONY, Oct. 16, 1960).

Interim rates will be collected under bond for at least a year, affecting the exchanges at Mapleton, Mound City, Altoona, Benedict, Coyville, Fall River, and La Fontaine.

New Jersey Independent Asks Across-Board Raise

The New Jersey Telephone Co., Flemington, has asked the New Jersey Department of Public Utilities for an across-the-board rate increase designed to raise its gross annual revenues by $356,000, and provide the company with net income of about $164,000.

The company, which has exchanges at Bloomsbury, Califon, Chester, Clinton, Frenchtown, Hampton, High Bridge, Lebanon, Long Valley, Oldwick, and Whitehouse, has about 19,000 subscribers.

Gary Chapter, ITPA, to Hold Annual Luncheon

The Theodore Gary Chapter of the Independent Telephone Pioneer Association will hold its annual luncheon at 11:30 a.m. on May 22, during the Kansas and Missouri associations' convention. The luncheon is to be held in the Continental Room of the Continental Hotel, Kansas City, Mo.

Guest speaker is Frank C. Lane, general manager of the Kansas City (Mo.) Athletics, Inc. Harold C. Stouffer of Diamond, Mo., president of the Gary chapter will preside.

Name Tex., La. Distributor, Koehring Divisions' Products

Brown-Fogle Equipment Co., Houston, has been appointed a distributor for southeastern Texas by the Koehring, C. S. Johnson, Parsons, and Buffalo-Springfield divisions of Koehring Co.

The new distributor will sell and

Thornhill Publishing Company
A DIVISION OF WESTERN UTILITIES CORP.

With Offices at
300 MONTGOMERY ST., SAN FRANCISCO, CAL.
2911 BOND ST., EVERETT, WASHINGTON
116 SOUTH RUSK ST., KILGORE, TEXAS
631 BRANIFF BLDG., EXCHANGE PARK NORTH, DALLAS, TEXAS
121 S.W. FIRST ST., BEAVERTON, OREGON
130 EAST LIME ST., MONROVIA, CALIFORNIA

PUBLISHING DIRECTORIES IN 10 WESTERN STATES

ARKANSAS
CALIFORNIA
IDAHO
KANSAS
LOUISIANA
OKLAHOMA
OREGON
TEXAS
UTAH
WASHINGTON

A Complete TELEPHONE DIRECTORY SERVICE

service the line of Koehring crane-excavators, paving equipment, and off-road hauling units; C. S. Johnson batching plants, clamshell and concrete buckets, electronic controls for automatic batch plants and concrete pipe and block plants, and Koehring-Johnson construction mixers; the Parsons line of ladder and wheel-type trenchers which includes models for trenching jobs, ranging in size from small utility cable trenches to big diameter cross-country pipeline ditches; and Buffalo-Springfield road rolling and compaction equipment, including two and three-axle tandems, three-wheel rollers, pneumatic-tired rollers, and the Kompactor.

Charles E. Brown is president of Brown-Fogle. R. B. Fogle is vice president and general manager. The distributor's street address is 3821 Almeda Rd.

Brown-Fogle Equipment Co. is a subsidiary of Southern Equipment & Tractor Co., Inc., which was appointed a distributor for the state of Louisiana by the Koehring Co. divisions mentioned above at the same time.

CF&I Names Driggs Western Manager, Wire Rope Sales

Jack Driggs has been appointed manager of wire rope sales for the Colorado Fuel & Iron Corp.'s Western Division, according to F. A. Jones, vice president in charge of sales, and J. N. Counter,

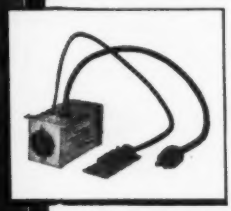
The appointment of S. E. Yeaton as assistant vice president of General Cable Corp. has been announced by J. R. MacDonald, president and chairman of the board. Mr. Yeaton is experienced in the wire and cable industry, having directed sales of electrical wire and cable for John A. Roebling's Sons Corp. for a number of years.

Where
LIGHTING
counts most
PRECISION
controls best

America calls 150,000 of these phone booths the warmest, brightest welcome anywhere at night.

Naturally, it's *automated light* . . . available only from Precision Multiple Controls. Miniaturized, fail-proof, a 2-component Precision photo-electric control will keep this bright voice in the night shining for years.

If you use light, it will serve you better — save you money — if it's *automated light* by Precision.



Call or wire for details

PRECISION MULTIPLE CONTROLS
233 Chestnut Street, Ridgewood, New Jersey
Pioneers in Photo Electric Lighting Controls

PWC

TELEPHONE CABLES
For Every Application

BURIED
TYPE 167

Specifically designed for direct earth burial by trenching equipment and ordinary methods as well as aerial and duct service.

Conforms to REA Specification PE-23 and IPCEA, Type I S-56-343.

Available in No. 19, 22, 24 and 26 AWG from 6 to 400 pairs.

Fully color coded with all pairs guaranteed.

Inner polyethylene jacket for mechanical and electrical protection.

Longitudinal copper shield corrugated on large diameter cables for flexibility.

5 mil copper tape on standard cable.

10 mil copper tape on gopher protected cables.

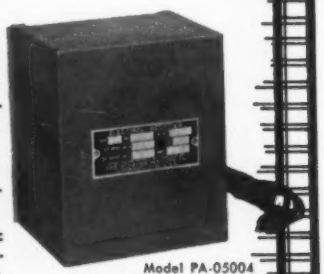
Black polyethylene outer sheath.

THE
PLASTIC WIRE & CABLE CORPORATION
JEWETT CITY, CONN.

BE SU-RRR-E!

Make SCHAUER your source for dependable DC POWER!

SCHAUER is recognized by the Telephone Industry throughout the world as a leading manufacturer of battery eliminators and battery chargers for almost every DC power requirement. You save with Schauer—on low first cost, low operating cost, and reliable service. See your Jobber or write for Bulletin No. 1470.



Model PA-05004
Schauer Battery Eliminator

Here's a sure SCHAUER power source for the operator's circuit on magneto switchboards

Schauer Type PA-05004 Battery Eliminator delivers constant, hum-free direct current to the operator's circuit. Equipped with relay for automatically transferring power to stand-by dry cells in the event of AC failure. Standard capacity is 4 volts DC at 0.5 amps. Steel case, for wall mounting is 5½"x6¼"x4".

Rectifier Division
SCHAUER
MANUFACTURING CORP.
4514 Alpine Ave., Cincinnati 42, O.

general manager, commercial steel sales, Western Division.

Mr. Driggs has been wire rope sales manager for the Mid-Continent division since 1951. Prior to joining CF&I in 1948 as a salesman for the Odessa, Tex. district, he was associated with Lucey Products Corp. and Jones & Laughlin.

A native of Oklahoma, Mr. Driggs attended Cumberland College in Williamsburg, Ky. and is a veteran of three years service with the Marine Corps.

Get Special PABX Board for Blind Operator in Nevada

Mrs. Winifred Anderson, who has been sightless for 12 years, is now employed at a PABX switchboard in the Nevada Employment Service's security department, as the result of the introduction of a special switchboard for the blind, the first of its kind in the state.

Richard Ham, executive director of the employment service's security department, and Clark Hardy, manager of the Las Vegas office, conferred with Fred Barnwell of Southern Nevada Telephone Co.'s special services department concerning a switchboard that could be operated by a blind person.

The special board was purchased from the United States Instrument Corp., of Charlottesville, Va.

On this PABX, tactile indicators "pop up" from the center of buttons to indicate calls; and the operator passes her fingers over the small keyboard lightly to determine which line has the call.

In preparation for her present work at the board, Mrs. Anderson trained many weeks with Southern Nevada Telephone's service advisors Violet Swartz and Helen Eleopulos.

Lindsay Telephone Supply Appoints Ad Agency

Lindsay Telephone Supply Co., Northfield, O., has announced the appointment of the Bayless-Kerr Co. as its advertising and public relations counsel, according to Clare W. Russ, sales promotion manager for Lindsay.

Lindsay, with offices and warehouses in Northfield and Atlanta, Ga. is a supplier to the telephone industry. Among the supplies Lindsay carries are wire, cable, pole line hardware, accessories, telephone booths and new cable-plugging compound, featuring a disposable cartridge.

Advertising plans include a trade magazine program featuring the theme "One Supply Source." Also, direct mail and a sales promotion program for Lindsay salesmen and representatives will be utilized.

Val Nowak is the Bayless-Kerr account executive in charge of the program.

GD/E Names Herrman Head, Advertising, PR Director

William H. Herrman has been named director of advertising, and acting director of public relations for General Dynamics/Electronics, J. G. Anderson, vice president-marketing, announces.

Mr. Herrman previously was manager of advertising and sales promotion for the Electronics division of

Observing blind operator, Winifred Anderson, at Nevada State Employment Service switchboard are, left to right: Clark Hardy, manager of Las Vegas office of the employment service; and Frank Rogers and Walter T. Geary, vice presidents of Southern Nevada Telephone Co., Las Vegas.

ELECTRONIC ENGINEERS

Field Operations

ANCHORAGE, ALASKA

As a Lockheed Field Operations Engineer, you can find a secure future—based on excellent salaries, specialized training advantages, the challenge of sophisticated modern electronic systems and the opportunity to advance with one of the important names in electronics.

Varied experience in communications integration including design, layout, installation, modification, calibration and overhaul of microwave, teletype and radio aid systems is desired.

You and your family will participate in Lockheed's modern benefit programs. Excellent starting salaries and overseas bonus. Family relocation assistance will be provided.

For additional details please send resume to:

LOCKHEED ELECTRONICS COMPANY

Plainfield, New Jersey

FINGER-TIP COMMUNICATION

the DUO-COM 100
WALKIE-TALKIE

Osborne's DUO-COM 100 pocket size *walkie-talkie* . . . a completely self contained transmitter and receiver that weighs only 20 ounces. No license or permits required . . . may be operated by anyone regardless of age or citizenship with dependable communication ranges up to 5 miles. Operates for pennies and is priced at only **$99.50** each or the DUO-COM 100S with an efficient squelch control at **$119.50** each.

The perfect companion . . . the OSBORNE 300 "Class D" base station at **$149.50.**

OSBORNE ELECTRONICS CORP. Dept. A2
13105 S. Crenshaw Blvd. • Hawthorne, Calif.

Please rush me complete details on your ☐ DUO-COM 100 ☐ DUO-COM 100S ☐ OSBORNE 300

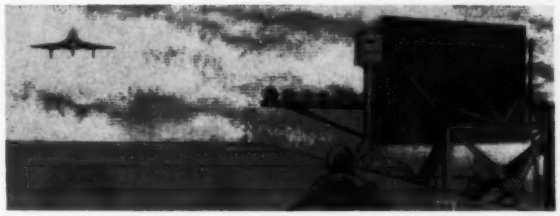
NAME _____

ADDRESS _____

CITY _____ ZONE ___ STATE _____

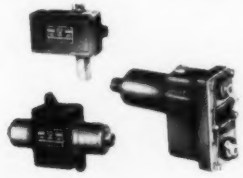
CONFIDENCE

where control



counts

Pressure-Vacuum Controls for Industrial, Aircraft, Marine, Special Purpose



APPLICATIONS: Unlimited. For 28 years, we have been designing and manufacturing controls to fit individual needs.

MEDIUM: Air, gas or liquid.

RANGE: 30"hg vac to 1700 PSI.

SENSITIVITY: 3/4 ± 1/10" W.C. and up.

SWITCHES: Normally closed, open or double throw. Manual reset, high ambient and others available. 15 or 20 amps. 115/250 Volts AC. Also DC.

TYPES: Skeleton or enclosed, calibrated or uncalibrated, single or multi-switch, minimum size and weight, differential pressure, absolute pressure, super-sensitive, shock-proof, explosion-proof and others.

OPERATION: Precision-made bellows combine with full rated snap-action switches for quick accurate response to pressure or vacuum change.

For further information request Condensed Catalog #500.

UNITED ELECTRIC

CONTROLS COMPANY

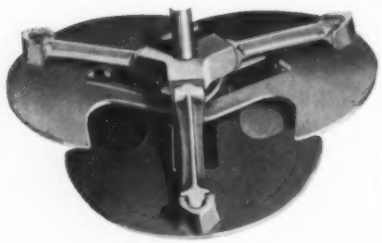
88 School St., Watertown, Mass.

IT'S NEWS!!!
Relief Is Here

Switchboard Operators . . .
the HEADSET TELE-MUFF Jr.®
and TELE-MUFF'S AIR CUSHION®
were made for Your Comfort!

Telephone Companies Contact Your Jobber
TELE-MUFF CO.
1719 FIRST STREET SAN FERNANDO, CALIF.

EXTRA Holding Power
QUICKLY Installed
TOUGH For long life



EVERSTICK ANCHORS

For new construction and maintenance —Everstick Anchors speed up work and provide dependable anchorage on all types of jobs. Made of resilient, rust resistant malleable iron. The toughest anchors made. Write for bulletin.

EVERSTICK ANCHOR CO.
FAIRFIELD, IOWA

W. H. HERRMAN

Stromberg-Carlson. Stromberg-Carlson, plus the separable electronics operations of other General Dynamics divisions, were combined last month to create General Dynamics/Electronics.

Mr. Herrman joined Stromberg-Carlson last July from Hoffman Electronics Corp., Los Angeles, where he was director of advertising and public relations for the military products division. Prior to joining Hoffman in 1955, he was with Fairchild Publications, Inc., New York.

W. E. Dell to Head Suttle's Acoustic Structures Division

William E. Dell has been named manager, Acoustic Structures Division, Suttle Equipment Co., C. L. Lineberger, executive vice president of Suttle announced recently. This division is the

W. E. DELL

newest of the several Suttle operating divisions, which now include the supply division, manufacturing division, printing division, and a subsidiary, the Suttle Directory Co. with main plant and warehouse at Lawrenceville, Ill.

Suttle Equipment Corp., manufacturer of telephone booths and special acoustic structures, has entered the industrial sound-control panel, audiometer room, sound-proof ducts and door field. Also manufactured are office equipment sound-control cabinets, sound-proofed projection booths, quiet rooms, sound-controlled test rooms, anechoic sound chambers, and a number of special application structures.

Mr. Dell majored in mechanical engineering at Northwestern University and goes to Suttle after eight years in the steel and non-ferrous metals fabrication field. Mr. Dell will be headquartered at the company's Chicago office.

Nation's Billion-Dollar Fire Loss for 1960 Highest

Estimated fire losses in the United States last year rose to $1,107,824,000, the highest dollar amount of loss in the nation's history, the National Board of Fire Underwriters has reported.

The 1960 total was 5.8 per cent above the $1,047,073,000 for 1959; and 4.9 per cent higher than the $1,056,266,000 for 1958. It was the fourth year in a row that fire losses exceeded the billion-dollar mark.

The record fire loss total for the last few years, in part, was due to the greater volume of construction in place; and in part, to the rise in the value of both new and existing buildings as a result of the inflationary trend.

The national board pointed out, however, that over the years, the loss of property which burns each year, in relation to total quantity of goods subject to burning, has continued progressively to edge lower.

"Even though 1960 fire losses, as measured by dollars, reached an all-time high, we feel we are winning our battle against fire," said Lewis A. Vincent, general manager.

Mr. Vincent continued, "It is not, however, a fight in which we can afford to become complacent. The headlines in our newspapers, almost daily telling of fatal fires in private homes, and costly fires in business establishments, point up the need for never ceasing vigilance."

For the month of December, 1960, fire losses totaled $101,903,000, an increase of 20.8 per cent over the $84,340,000 for November, 1960, and an increase of 5.7 per cent over the $96,444,000 for December, 1959.

The National Board of Fire Underwriters fire losses figures are based on monthly reports from member companies; and these reported losses are adjusted to reflect the uninsured and unreported losses.

EVERY MONTH

More and More Telephone Companies use DIRECTORIES produced by

LELAND MAST DIRECTORY COMPANY
1619 GREENWOOD WILMETTE, ILL.

TELEPHONE DIRECTORY PUBLISHING
MAILING — COLLECTIONS
WRITE: BOX 717, AZLE, TEX.
SMITH DIRECTORY SERVICE
PHONE FT. WORTH, TEX. CE 7-3584

CABLE CONSTRUCTION CO.
1512 Center St. Tacoma, Washington
ENGINEERING - CONSTRUCTION
SPLICING - CABLE PLOWING
CENTRAL OFFICE INSTALLATION
World-Wide

Electric Power and Communications Construction
E. & C. CONTRACTING CO.
Box 191
Paoli, Indiana
Phone 7821

Professional Engineers - Contractors
Central Office Installation
Cable Splicers, Plant Crews, Installer Repairmen
HENKELS & McCOY
PHILADELPHIA
1800 N. Johnson St., Elkhart, Ind., Tel. CO 4-1121

KILLOREN COMPANY
Construction crews—Installers
Cable Splicers
30 years experience
136 N. State St. Appleton, Wisconsin
REgent 3-5549

TUDOR AND YAGER, INC.
Telephone Construction
TIPTON, INDIANA
Phone OSborne 5-2267

HARRIS-McBURNEY CO.
PUBLIC UTILITY CONSTRUCTION
A complete construction service for the telephone industry
Construction Crews — Designing
Station Installers — Appraisals & Reports
Cable Splicers — C. O. Installation
Underground Duct Sytems
Telephone ST 4-6126
P. O. Box 267 Jackson, Michigan

POLES
CREOSOTED SOUTHERN YELLOW PINE
LOW RESIDUE COAL TAR DISTILLATE
"Truck Delivery Our Specialty"
Baker Wood Division, D. B. Frampton & Company
P.O. BOX 520 MARION, OHIO

CREO & PENTA TREATED **POLES**
"from the Nation's Largest Plant"
DIERKS FORESTS, INC.
NA 3-7766 Hot Springs, Ark.

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

Cascade Pole Co., P.O. Box 743, Tacoma, Wash. — Creosoted Douglas Fir and Cedar Poles.

C. M. Christiansen Co. — Northern White Cedar Poles, Pentachlorophenol treated. Plant and Yards, Phelps, Wis.

Eppinger & Russell Co., 80—8th Avenue, New York 11, N. Y.—Creosoted Poles and Cross Arms. Plants: Jacksonville, Fla., Norfolk, Va., Eddington, Pa.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

International Paper Co., Wood Preserving Division — 926 Grand Avenue, Kansas City, Missouri—"LONG-BELL" pressure-treated Southern Pine and Douglas Fir Poles—Creosote or Penta.

Piedmont Wood Preserving Company —Creosoted and Creosote-Penta Treated Pine Poles. Plant, Augusta, Georgia. Yards, Virginia, West Virginia and Connecticut. Address inquiries to Box 1662, Spartanburg, S. C.

Texas Creosoting Company—512 Main Street, Orange, Texas—Creosoted Southern Yellow Pine and Douglas Fir Poles. Can also treat with "Penta."

INSPECTION SERVICE
"AT TIMBER TREATING PLANTS"
Of poles, crossarms, and preservative treatments. Analysis of wood preservatives. Consultation and specification writing.
A. W. WILLIAMS INSPECTION CO., INC.
MOBILE, ALABAMA
New York • St. Louis • Portland
Inspectors stationed throughout the U.S.A.

CABANISS-POGUE COMPANY
Consulting Engineers
Appraisals—Cost and Rate Studies
Financial Assistance
GRANT BLDG., ATLANTA, GEORGIA

CARL C. CRANE, INC.
Consulting Engineers
121 S. Pinckney St. Madison 1, Wis.
Telephone ALpine 6-0247

McGRATH ENGINEERING, INC.
Consulting Engineers
209 West 6th Street
TOPEKA, KANSAS
Telephone CE 2-2358

SLOAN, COOK & LOWE
CONSULTING ENGINEERS
Appraisals—Original Cost Studies
Plant, Traffic and Commercial Engineering
120 S. La Salle St.
Chicago 3, Ill. Tel.: FRanklin 2-5924

EQUIPMENT
INSTALLATION & ENGINEERING
Your temporary installation and engineering bottle necks do not justify expensive new hiring.
Our equipment installers, engineers, radio and microwave specialists can keep you on schedule.
T.E.I. CORP. TW 95895 2118 E. 30th St. Erie, Pa.

NEED HELP?
NEED A JOB?
SOMETHING TO SELL?
SOMETHING TO BUY?
For best results and quick results use
TELEPHONY'S
Classified Advertising Section

CLASSIFIED SECTION

Rates 15 cents per word payable in advance. Minimum charge $3.00 for 20 words or less.
Classified advertisements must reach us 8 days before publication date.

POSITION WANTED

ACCOUNTANT—University graduate with heavy telephone experience. Interested in responsible position with class "A" company. Résumé on request. Write Box No. 4507, c/o TELEPHONY.

TELEPHONE MANAGER now employed Independent company wishes to relocate on west coast. Experienced all phases of communication field, seven years AT&T, four years REA consulting engineering, 20 years Independent companies, heavy carrier experience. Write Box No. 4512, c/o TELEPHONY.

HELP WANTED

AMBITIOUS MEN qualified as Station Installers, Equipment Installers, Cable Splicers, Linemen. Work in Midwest. Harris-McBurney Company, Inc., P.O. Box 267, Jackson, Mich.

INSIDE PLANT ENGINEERS—must be experienced in dial and manual. Send detailed résumé or telephone R. G. Whitmore, National Scientific Laboratories, Inc., 2010 Massachusetts Ave., N.W., Washington 6, D. C. HUdson 3-4030.

CABLE SPLICERS • LINEMEN
STATION INSTALLERS
STEADY WORK, GOOD PAY
MIDWEST LOCATION
The Weikel Line Company, Inc.
FORT WAYNE, IND.

HELP WANTED

TRANSMISSION ENGINEERS—must be experienced in toll and local. Send detailed résumé or telephone R. G. Whitmore, National Scientific Laboratories, Inc., 2010 Massachusetts Ave., N.W., Washington 6, D. C. HUdson 3-4030.

CABLE SPLICERS, Station Installers, Equipment Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 1800 Johnson St., Elkhart, Indiana, or 6100 N. 20th St., Philadelphia, Pa.

CARRIER TECHNICIANS—experience should include installation, maintenance and adjustment. Send detailed résumé or telephone R. G. Whitmore, National Scientific Laboratories, Inc., 2010 Massachusetts Ave., N.W., Washington 6, D. C. HUdson 3-4030.

ENGINEERS — TELECOMMUNICATIONS SYSTEMS: Transmission; Propagation; Field Surveys, Applications Research. VHF, UHF, MICROWAVE, SCATTER. Write: Employment Manager, Microwave Services, Inc., General Offices, 266 W. Main St., Denville, N. J.

COMBINATION MAN
Rural area. Accustomed to line work, able on North relay dial, some carrier. $110 per hard-working week. Unusual advancement opportunity, low rent on small house.
G. L. McFarland
Mogollon Mountains Telephone Co.
5 Crestway — Silver City, N. M.

HELP WANTED

EXPERIENCED LINEMEN AND STATION INSTALLERS. Paid holidays, vacation and other employee benefits. Central United States. Morton Contracting Co., Box 11, Cherokee, Ia.

OUTSIDE PLANT ENGINEERS—must have thorough background in all phases in open wire and cable plant design. Send detailed résumé or telephone R. G. Whitmore, National Scientific Laboratories, Inc., 2010 Massachusetts Ave., N.W., Washington 6, D. C. HUdson 3-4030.

TELEPHONE
DOMESTIC & OVERSEAS
High Salaries
Telephone-Installation
Outside Plant
Telephone-Inspection
Outside Plant Construction
Overhead & Underground Cable Splicing
Req: 8 years wire engineering and/or installation/splicing
Write: Employment Manager
CAPEHART CORP.
87-46 123rd St. Richmond Hill 18, N. Y.

shortest way to
Quality, Service and Low Prices . . .

BUCKEYE
HU 8-0655

WESTERN ELECTRIC
W.E. #76-A Heat Coils
W.E. #551-A PBX Switchboards
W.E. #52 Type Operators Sets
W.E. #1269 Protectors (20 Per)

AUTOMATIC ELECTRIC
A.E. #D-281638-A Repeating Coils
A.E. #D-283154-A Repeating Coils
A.E. Type #50 Wall Telephones
A.E. Cases only for #50 Wall Telephones
A.E. Synchromonic Ringers for Type 40 Telephones
A.E. Relays

KELLOGG
#20-A and #21-A Repeating Coils
#64 Condensers 2MF
#261 and #258 Spring Jacks
#25 Lamp Jacks
#106 Switchboard Plugs (Short Shell)

Reconditioned by

BUCKEYE TELEPHONE & SUPPLY CO.
1250 KINNEAR ROAD **COLUMBUS 21, OHIO**

TELEPHONE OUTSIDE PLANT ENGINEERS

Immediate Openings For:
Thoroughly Experienced Engineers in Various Project Support Activities in Home Office Staff group

TELEPHONE INSIDE PLANT ENGINEERS

Carrier experience combined with thorough knowledge of transmission criteria. Must be willing to relocate after initial home office assignment.

CARRIER INSTALLERS SUPERVISORY

Heavy experience requirement for supervision of projects at various missile bases.

LIBERAL EMPLOYEE BENEFITS

including excellent retirement program. These positions offer unusual opportunities in a new division of a long established company. Send complete résumé of past experience.

TO: MR. H. J. RECKAS
OR MR. E. T. MACULAK

Advanced Communications Engineering

A DIVISION OF
COOK ELECTRIC COMPANY
CHICAGO, ILLINOIS

6038 Twenty-Eighth Ave. S.E.
Washington 23, D. C.

WANTED TO BUY

NORTH ELECTRIC M C X R L 200 line or larger telephone switchboard. Write Box No. 4510, c/o TELEPHONY.

INTERESTED IN PURCHASING TELEPHONE COMPANY. Not less than 700 stations. Contact Box No. 4509, c/o TELEPHONY.

WANTED ALL MAKES OLD TELEPHONES—our truck will pick up and pay you Cash on the spot. Telephone Co., Turtle Lake, Wis.

TELEPHONE COMPANIES—Independent telephone operating company seeking to extend its operations. Adequate financial ability. For an equitable arrangement inquire Box No. 4499, c/o TELEPHONY.

TELEPHONES—all types—any condition, candlesticks, wall sets, etc. Write advising quantities available. Our trucks will pick up. Reply to Box No. 3952, c/o TELEPHONY.

ARE YOU INTERESTED IN SELLING YOUR TELEPHONE COMPANY? We are ready to buy and able to offer highest price. Full cash or terms. Reply to Box No. 4487, c/o TELEPHONY.

WANTED TO BUY
TELEPHONES — Any condition. Desk stands, wall sets, etc. Advise quantity available.
Write Box No. 4438, c/o TELEPHONY

FOR SALE

NEED USED EQUIPMENT? Many items available due to large conversion program. Stromberg-Carlson Jr. multiple switchboards, jacks, lamp strips, Flotrol chargers, M.G. sets, North CX-1000 dial unit, trunk circuits, telephones, etc. The United Telephone Co. of Pennsylvania, Box 129, Harrisburg, Pa. CEdar 4-1121.

FOUR POSITION AE TOLL SWITCHBOARD; one 2-position section with five panels; two single position sections with three panels each. Equipped with 10 and 20 per strip jacks and 10 cord circuits in each position. Write or call collect: J. J. Edgerley, General Telephone, 501 Tecumseh, Fort Wayne, Ind. Phone: E-9611.

UTILITY EQUIPMENT CO.
P.O. BOX 9507, OKLAHOMA CITY 18, OKLA.
F.W.D. Trucks, Highway and Tel-E-Lect Earth Boring Machines, all types of special earth augers. Line and Service Bodies, Service Boxes, Winches, Hydraulic Derricks and Booms, Aerial Platforms and Ladders, Pole and Cable Trailers, Dewatering Pumps, Portable Power Plants, Power Saws, Chippers and Sprayers.

DAVIS
CONSTRUCTION COMPANY
UTILITY PLANT CONSTRUCTION
45 North Clark Street ■ Sullivan, Missouri

FOR SALE

LEICH 901-wall or desk magneto telephones. Cleaned, tested and guaranteed, $16.50 each. As removed from service, no broken or missing parts, $15.00 each. Turtle Lake Tel. Co., Turtle Lake, Wis.

KELLOGG RELAYMATIC 500 terminal per line equipment in excellent condition, as is, where is, any reasonable offer accepted. Sitka Telephone Co., Box 257, Sitka, Alaska.

USED TELEPHONES 235 W.E. 302's; 75 Stromberg 1250's and 190 Stromberg 1243's; 58 North 9800's and 30 North 9000's. These are priced to sell. Quantity lot prices $3.75 per set. Polar Telephone Co., Park River, N. D.

SIXTEEN POSITION LEICH NO. 1 TOLL SWITCHBOARD. Eight 2-position sections with multiple on a five panel basis equipped with 20 per strip jacks. Two positions with 12 cords each, others have 8 cords each. Write or call collect: J. J. Edgerley, General Telephone, 501 Tecumseh, Fort Wayne, Ind., Phone: E-9611.

MONROE BILLING MACHINE, will be serviced before selling and is in excellent condition. Ideal billing machine for company up to 2000 stations, complete with stand and ledger sheet files. Will be taken out of service First of April. Will sell reasonably. Farmers Mutual Telephone Co., Harlan, Iowa.

Whether a Winch Line Hook or a complete Line Body check your requirements with

UTILITY TOOL & BODY CO.
CLINTONVILLE, WISCONSIN

NON-RESIDUAL
CONTACT BURNISHER
FOR USE ON ANY TYPE CONTACT

- No residue.
- No filings—no grit or dust no film.
- Economical—flexible—insulated.
- Each one comes in vinyl case.
- Balanced—length 3", 2" blade, 3/16" wide x .007" thick.

SAMPLE TRIAL PKG. OF 10—$3.50. 50 TO 950—24c each.
PROMPT SHIPMENT
P. K. NEUSES, INC.
511-19 N. Dwyer St., Arlington Heights, Ill.

Priced For Quick Sale

SUBMARINE CABLE

Lead (All New)
26 Pair #19 Ga. Paper Ins. Lead Covered, Double Steel Wire Armor, two Layers Jute ..... 14,000 Ft.
(800 & 500 Ft. Lengths)
Ideal For Direct Burial under highway, etc.

OTHER CABLE

11 Pair #19 Ga. Paper, Lead (4,500 Ft. Reels)	22,000 Ft.
7 Quad. #19 Ga., Paper, Lead	100,000 Ft.
7 Quad. #19 Ga., Plastic, PVC	5,300 Ft.
37 Quad. #19 Ga., Paper, Lead	1,050 Ft.
51 Pair #19 Ga., Paper, Lead *(plus 4 #16 Shielded Pair with polyeth, insulation) video, radio, carrier, etc.*	1,200 Ft.
303 Pair #22 Ga., Ankoseal 775P	1,600 Ft.
404 Pair #26 Ga., Paper, Lead	2,800 Ft.
152 Pair #26 Ga., Paper, Lead	2,000 Ft.

16, 26, 51 Pair #22 Ga., W.E. BUA, coded, textile Lead switchboard cable.

Telectric Co.

(DDD 213) RIchmond 8-2249

1218 Venice Boulevard **Los Angeles 6, California**

Index to ADVERTISERS

	Page
AC Spark Plug Div. of General Motors	—
Ace Tree Service	—
Acme Electric Corporation	—
Acme Visible Records, Inc.	55
Airtronics International Corp.	39
Alphaduct Wire & Cable Co., The	—
Altec Lansing Corp.	—
Aluminum Company of America	—
Aluminum Ladder Co.	—
Amchem Products, Inc.	—
American Electrical Heater Co.	—
American Steel & Wire Co.	—
American Telephone & Telegraph Co.	52-53
Anaconda Wire & Cable Co.	6-7
Andrew Corporation	—
Ansonia Wire & Cable Co., The	—
Arps Corporation	—
Arrow Fastener Co., Inc.	—
Automatic Electric Sales Corp.	8-9, 40-41
Baker Wood Division	69
Barber Advertising Specialties, Walt	—
Batlle & Co., Inc., Jos. A.	—
Bell Telephone Laboratories, Inc.	—
Benner-Nawman, Inc.	—
Berry & Co., L. M.	16
Bethlehem Steel Co.	—
Bohnsack Equipment Co.	—
Brady Co., W. H.	—
Brand, Wm.—Rex Div.	—
Buckeye Telephone & Supply Co.	70
Budelman Electronics Corp.	—
Burgess-Manning Company	—
B. Y. Dial Service	—
C&D Batteries, Inc.	—
Cabaniss-Pogue Co.	69
Cable Construction Co.	69
Cable Spinning Equipment Co.	—
Calculagraph Company	—
Carter Directory Co., Inc.	—
Chance Co., A. B.	58
Chevrolet Div. of General Motors	—
Cleveland Inst. of Electronics	—
Collins Radio Co.	—
Colorado Fuel & Iron Co., The	—
Commercial Cord Company, Inc.	—
Communication Equipment & Engineering Co.	—
Cook Electric Company	—
Copperweld Steel Co.	—
Crane, Inc., Carl C.	69
Danish Import	—
Davis Construction Co.	71
Dial Haven, Inc.	—
Dierks Forests, Inc.	69
Donnelley & Sons, R. R.	—
Duo-Safety Ladder Corp.	—
Dupont de Nemours & Co., Inc., E. I.	—
E. & C. Contracting Co.	69
Electronic Secretary Ind., Inc.	—
Electronic Specialties Co.	—
Everstick Anchor Co.	68
Exide Industrial Div.	—
Fitchburg Engineering Corporation	—
Floor-Con	—
Ford Motor Co., The	2-3
Gagne Enterprises, Inc.	—
General Cable Corporation	—
General Machine Products Co., Inc.	—
General Telephone Directory Co.	—
Gladwin Plastics, Inc.	—
Globe Electronics	—
Gould-National Batteries, Inc.	—
Graybar Electric Co.	14-15
Haley & Co., R. G.	—
Hallamore Electronics Co.	—
Hancock Mut. Life Ins. Co., John	—
Harris-McBurney Company	69
Heckendorn Mfg. Co.	—
Henkels & McCoy	69
Highway Trailer Company	—
Hirsch Organization, Inc., Gustav.	60
Hitachi, Ltd.	12
Holan Corp.	—
Indiana Steel & Wire Co.	45
International Teletronics, Inc.	13
Irwin-Auger Bit Co.	—
ITT-Kellogg	28-29
Jet Line Products, Inc.	—
Johns-Manville	—
Justrite Mfg. Co.	—
Kato Engineering Co.	—
Kearney Co., Jas. R.	—
Kemore Mfg. Co.	—
Kennecott Wire & Cable Div.	—
Keystone Steel & Wire Co.	—
Killoren Company	69
Klein & Sons, Mathias	—
Kohler Co.	—
Koiled Kords, Inc.	5
Koppers Co., Inc. Wood Preserving Div.	—
Kwal Paints, Inc.	—
Kwik-Mix Co.	—
Leich Sales Corporation	10-11
Lenkurt Electric Co.	—
Lindsay Telephone Supply Co.	36-37
Lockheed Electronics Co.	67
Lorain Products Corp., The	—
Lynch Communications Systems, Inc.	61
Magnolia Chemical Co., Inc.	56
Mast Directory Co., Leland	69
McCabe-Powers Body Company	—
McGrath Engineering, Inc.	69
Minnesota Mining & Mfg. Co.	57
Monsanto Chemical Co.	—
Morrison-Pelsue Co.	—
Natco Corporation	—
National Standard Co.	43
National Telephone Supply Co.	Back Cover
Neubauer Manufacturing Co.	—
Neuses, Inc., P. K.	71
Northeast Electronics Corp.	—
North Electric Company	73
Okonite Company, The	—
Onan Division, Studebaker-Packard Corp.	—
Orangeburg Mfg. Co.	—
Osborne Electronics Sales Corp.	67
Osmose Wood Preserving Co.	—
Owens-Illinois	—
Panhandle Electric Sales, Inc.	—
Petersen Engineering Co., Inc.	60
Phelps Dodge Copper Products Corp.	—
Philco Corporation Gov. & Ind. Div.	—
Plastic Wire & Cable Corp.	65
Plastimayd Corporation	—
Porter Co., Inc., H. K.	—
Precision Multiple Controls	65
Preformed Line Products Co.	—
Puregas Equipment Corp.	—
Railway Communications, Inc.	—
Ramset Fastening System	—
Raytheon Company	47
Recordak Corp.	49
Reichhold Chemicals, Inc.	—
Reliable Electric Company	62-63
Remington Rand Div.	—
Rolatape, Inc.	—
S & G Manufacturing Co.	—
Schauer Mfg. Co.	66
Seymour Smith & Son	—
Sherron Metallic Corp.	—
Sierra Electronics Corp.	59
Sloan, Cook & Lowe Co.	69
Smith Directory Service	69
Stampings, Inc.	—
Sterile Telephone Corp.	—
Stewart Brothers	—
Stromberg-Carlson	20-23
Studebaker-Packard Corp.	—
Superior Cable Corporation	—
Suttle Equipment Corporation	54
Telectric Co.	71
T.E.I. Corp.	69
Telephone Repair & Supply Co.	—
Tele-Wire Supply Co., Inc.	68
Tele-Muff Co.	68
Teletype Corporation	—
Templeton, Kenly & Co.	—
Terado Company	—
Thornhill Publishing Co.	64
Transandean Associates, Inc.	—
Truck Equipment Company	—
Tudor & Yager, Inc.	69
Union Carbide Plastics Company	51
United Electric Controls Co.	67
U. S. Cable Constructors, Inc.	—
United States Independent Telephone Association	—
United States Instrument Corp.	44
United States Motors Corp.	—
United States Steel Corp. American Steel & Wire Co.	—
Universal Controls Corp.	—
Utilities Contracting Co.	—
Utility Equipment Co.	71
Utility Service Co., Inc.	—
Utility Tool & Body Co.	71
Vermeer Manufacturing Co.	—
Warren Mfg. Co., The	—
Weikel Line Company	70
Western Electric Co.	—
Whitney-Blake Co.	—
Williams Inspection Co., Inc., A. W.	69
Wilson Rubber Company	—
Winders & Geist, Inc.	64
Wiremold Co., The	—
Wyoming Valley Equipment Div.	—

WESTERN REPRESENTATIVE:

McDONALD-THOMPSON

625 Market St., San Francisco Cal.

3727 W. Sixth St., Los Angeles

620 Sherman St., Denver, Colo.

National Bldg., Seattle, Wash.

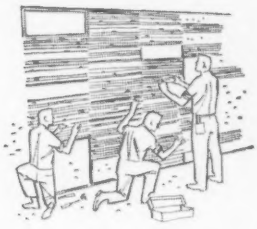
3217 Montrose Blvd. Houston, Tex.

2727 Oak Lawn Ave., Dallas 19, Tex.

2035 S. W. 58th Ave., Portland 1, Ore.

TERMINAL-PER-?

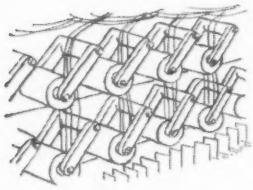
Operating companies have long been aware of the basic fact that the best service can only be provided with "terminal-per-station" operation.



To provide this type of service, operating companies have had to undertake expensive and time-consuming "strapping" and, in many cases, the addition of new equipment.

North Electric Crossbar gives you terminal-per-station capacity beyond that of any other switching system... Consider these facts:

The number group in North Electric Crossbar allows you to assign a permanent directory number without <u>any</u> restriction. <u>Only one wire</u> has to be moved to relocate a directory number, as contrasted to the three or four strapping operations necessary in other systems.

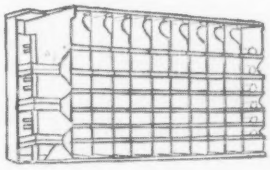


Traffic loads can be re-distributed without changing numbers, since any subscriber number can be assigned to any connector terminal.

PBX numbers can be assigned without regard to consecutive terminal assignment. Number and line reserve problems are completely eliminated. Full choice of ringing frequency is available to any terminal. Intercept is completely automatic.

You can readily see why modern telecommunications service can best be maintained with North Electric Crossbar, no matter what the size of the exchange (yes, NX-2 and NX-3 Crossbar for medium and small exchanges offer the same advantages).

North Electric Crossbar is the only "proven-in-use" switching equipment available to the Independent Telephone Industry that incorporates the advanced design features that put the "serve" in telephone service today ...and keep it there for tomorrow. North Electric Crossbar is, naturally, a development of...



THE DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

NORTH ELECTRIC COMPANY

GALION, OHIO

No. 3 in a series of factual presentations on the North Electric Crossbar

Nicotap

THE FAST, DEPENDABLE Nicopress WAY OF MAKING LINE AND DROP WIRE TAPS

THE NICO-TAP IS SPLIT

THERE IS NO NEED OF CUTTING THE LINE TO MAKE THE CONNECTION—JUST SLIP THE SLEEVE OVER THE LINE WIRE AND COMPRESS

12 BWG TO 12 BWG
Stock No. T2-109D

12 BWG TO No. 17-18 DROP WIRE
Stock No. T2-109 x 045D

17-18 B&S TO 17-18 B&S
Stock No. T2-045B

Manufactured in many different sizes and combinations

The National Telephone Supply Company

5100 SUPERIOR AVENUE • CLEVELAND 3, OHIO

Canadian Mfr.—N. SLATER CO., LTD., HAMILTON, ONT., CANADA

Export Distributor—INTERNATIONAL STANDARD ELECTRIC CORP., NEW YORK, N. Y.

Nicopress is the Registered Trade Mark of The National Telephone Supply Company

THE NATIONAL TELEPHONE SUPPLY COMPANY

ASK YOUR JOBBER